

OKLAHOMA STATE DEPARTMENT OF HEALTH
PRELIMINARY ASSESSMENT REPORT

9819512



Date: September 6, 1989

Prepared by: Scott A. Thompson

Site Name: Fibercast

Address: 25 S. Main
(street)

Tulsa
(town)

OK
(state)

74063
(zip)

EPA ID#: OKD007217748

X-ref in SA Vol #1

1. **Site Information:**

This site is located at 25 South Main Street in Sand Springs, Oklahoma. It is in the S $\frac{1}{2}$ of the SE $\frac{1}{4}$ of Section 11, Township 19 N, Range 11 E. The coordinates are 36 08'09" North latitude and 96 06' 18" West longitude. (1,9)

The site is currently privately owned and operated by Fibercast. The company contact is:

Raymond L. Breshears, Vice President
P.O. Box 968
Sand Springs, OK 74063
(918) 245-6651

This site is being investigated as part of an effort to identify possible sources of groundwater contamination upgradient of the Sand Springs Petrochemical Complex National Priorities List site.

2. **Background/Operating History:**

The site is a large manufacturing facility on approximately 16.5 acres. Fibercast manufactures fiberglass reinforced pipe. They do use some solvents including acetone, methylene chloride, styrene, and mineral spirits. There are several underground storage tanks on the site in which unused and used solvents are stored. The company has been in operation at this location since about 1948. Mr. Breshears indicated that part of the property may have been used for a railroad maintenance area and a cotton warehouse in the past. The property was previously owned by Youngstown Steel & Tube Co. from 1964 to 1981, when Fibercast acquired the property. Prior to 1964 it was owned by the Sand Springs Home. (1,2)

SUPERFUND FILE

AUG 20 1992

REORGANIZED

The Plant Engineer, Larry Moore, provided a letter indicating the average volumes of solvents purchased and recycled per month in 1988. See Reference 16.(1,16)

Photographs taken during the site reconnaissance were apparently lost in the mail after development and are not attached to this report. However, a copy of an aerial photograph is attached as a reference. The aerial photograph is from a document titled "Aerial Reconnaissance of the Sand Springs Hazardous Waste Site Sand Springs, Oklahoma prepared for EPA Region VI" and should be available in the Region VI office.

3. Waste Containment/Hazardous Substance Identification:

Most of the waste on site has been contained in either 55-gallon drums or in underground storage tanks (USTs). There is no documentation of leaks from the USTs or drums. The types of compounds stored in the drums and USTs have been both products and wastes, they include: acetone, mineral spirits, naphtha, styrene, vinyl ester resin. Waste acetone is stored in at least 1 UST and it is recycled on site and placed back into the acetone product UST. The company does maintain files on wastes stored or shipped offsite. (1)

Total waste quantities are estimated from RCRA closure plans:

<u>Source</u>	<u>Quantity</u>	<u>Compounds</u>	<u>Containment</u>
plastic process waste	48 drums	vinyl ester	drums*
unknown	25 drums	methacrylic acid	drums*
epoxy process waste	12 drums	unknown	drums*
other waste	11 drums	unknown	drums*
waste acetone	2800 gallons	acetone	UST. (22,23)

*(none of the drums were noted to be leaking during RCRA inspections)

A sample was taken of monitor well number MW 18. No organics were detected in either the sample or the field blank. The only metal detected above primary drinking water standards was Lead at 128 ug/L. The same inorganic compounds were detected during the Sand Springs Remedial Investigation but all were slightly lower in concentrations. MW 18 is upgradient of Fibercast and there is not a downgradient well within the immediate vicinity of Fibercast. (20,21)

4. Pathway Characteristics:

Air- While there are volatile organic compounds on the site, air releases would most likely be due to manufacturing activities which would be regulated by OSHA. Documentation of an air release from waste materials would be difficult.

Groundwater- The site is located in the alluvium of the Arkansas River. It is approximately 19 feet deep to the water table. The hydraulic conductivity is

believed to be 10^{-2} . The general flow of groundwater in the area is from northwest to southeast. The aquifer of concern is the alluvial aquifer and it ranges from 30 to 80 feet in thickness. Groundwater is used for private water supply in the general vicinity of the site. The net precipitation is approximately negative fourteen inches per year. (11, 15, 20)

Surface water- Runoff from the site will most likely enter the city storm sewer system and then flow into a large holding pond which is pumped over the levee into the Arkansas River. Documenting an actual release from the site to surface water would be unlikely. There are no known drinking water or irrigation intakes for 15 miles downstream of the site. There are 2 industrial intakes on that segment of the Arkansas River. (9, 13)

There is some recreational use of the river in the Tulsa area for boating and perhaps fishing.

The upgradient drainage is estimated to be 40 acres. (9) The average annual stream flow of the Arkansas River is 6790 cubic feet per second. (10)

The two year 24 hour rainfall is 4.0 inches. The site is protected from flooding by a large levee along the Arkansas River, which has altered the historical flood plain. However it may be within the 500 year flood plain. (9, 12)

5. Targets:

Groundwater- There are approximately 319 users of groundwater for private water supply within 4 miles of the site. (9, 11)

<u>Distance (miles)</u>	<u>Population</u>
0- $\frac{1}{4}$	0
$\frac{1}{4}$ - $\frac{1}{2}$	0
$\frac{1}{2}$ -1	0
1-2	266
2-3	19
3-4	34
Total	319

Surface water- The only human surface water targets would likely be recreational users, boaters and possibly fisherman, of the Arkansas River. (13) The fish production of the Arkansas River is unknown and it is suggested default values be used to evaluate possible human food chain impacts. A rough estimate of surface water recreation targets is 199,000 people from 0-5 miles and 186,000 people from 5-10 miles.

Air Targets- The total population within 4 miles of the site is relatively high since it is in an urban area. However, the likelihood of documenting an observed release to the air from waste materials is low. It would be very difficult to distinguish between any possible air releases by wastes from those of products being used.

<u>Population (est)</u>	<u>Distance</u>
275	onsite
500	0- $\frac{1}{4}$
7000	$\frac{1}{4}$ - $\frac{1}{2}$
10000	$\frac{1}{2}$ -1
10000	1-2
10000	2-3
20000	3-4

Onsite Targets- The only onsite targets would be employees' of the company which number about 275 people. (1) Access to the site is restricted by fences which are in good condition.

Sensitive Environments- The Arkansas River area serves as habitat for Bald Eagles and Interior Least Terns, both federally endangered species. There is a Least Tern nesting project on the Arkansas River in the Tulsa, Oklahoma area which is downstream of the site. (17, 18, 19)

6. Other Regulatory Involvement:

This site is regulated by RCRA and they also have a permit from the City of Sand Springs for discharges to the sanitary sewer. (14)

The state RCRA file indicates that Fibercast has received warning letters or notices of violations on at least five occasions. (3,4,5,6,7)

Fibercast appears to have corrected items of concern after receiving the warnings. At one point they maintained a drum storage area under Interim Status. They have since tried to drop their TSD status in favor of being a generator only (90 day storage). They have not yet been able to complete the process to become only a generator. The drum storage area has been used to store both non hazardous waste (waste oils, hardened plastic) and hazardous wastes (spent solvents D001, waste epoxy D004, vinyl ester D001, lab waste D002, acid solutions and sludges D002). References 3-7 contain copies of the warning letters and other significant information from the State RCRA file. None of the file material actually document any releases to the environment. (3,4,5,6,7)

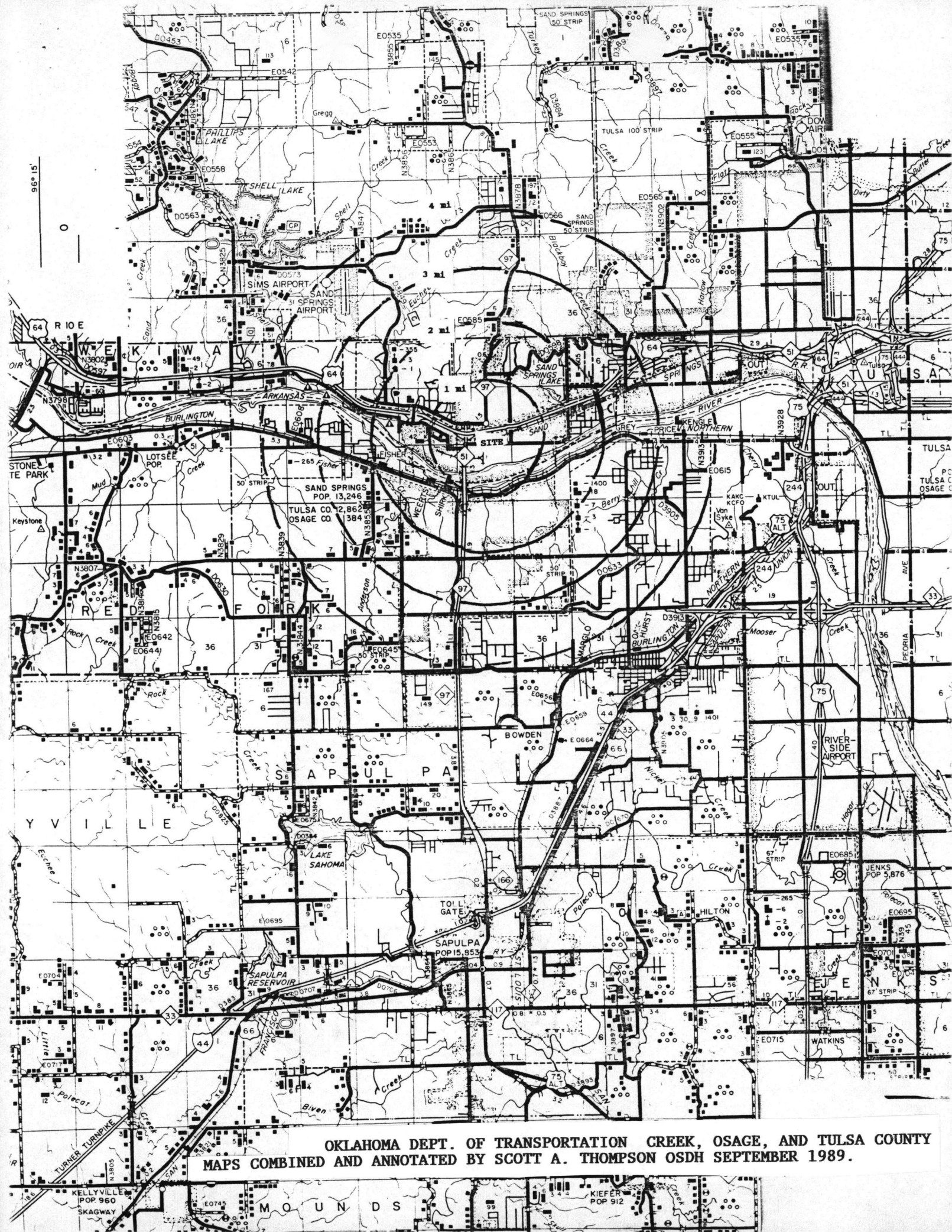
7. Conclusions and Recommendations:

The site has been used for manufacturing pipe since 1948. There are several underground storage tanks on the site which are used to store both product and waste solvents. Drummed wastes and products have also been stored on the site. There is currently no documentation of a release to the environment from the site. However, there are no known wells immediately downgradient of the site.

If a screening site investigation is performed then one or more monitor wells should probably be installed downgradient of the site or a soil gas survey could be conducted. This would help determine whether the site significantly contributes to any of the contamination documented near the NPL site.

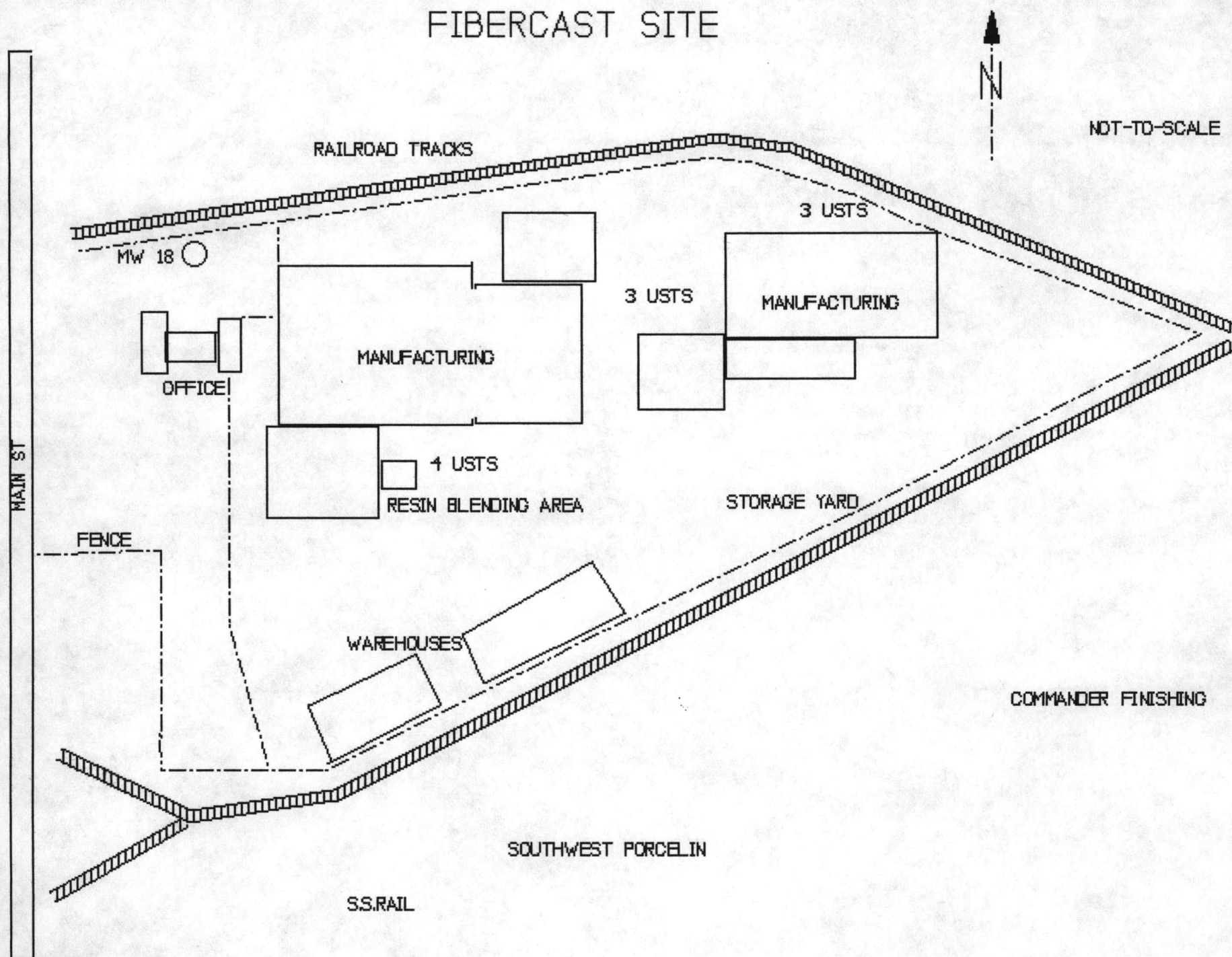
Data Gaps:

1. A release to groundwater is possible but has not been documented.
2. The previous owner's current address and status are unknown.
3. The site may lie within the 500 year flood plain but this would need to be documented.
4. There are no known records of fish production in the Arkansas River.
5. Since the OSDH has not yet been able to obtain access to GEMS the population estimates for the surface water recreation targets and air targets are very rough.



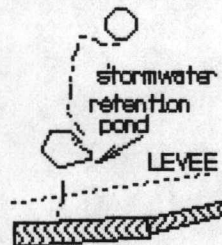
OKLAHOMA DEPT. OF TRANSPORTATION CREEK, OSAGE, AND TULSA COUNTY
MAPS COMBINED AND ANNOTATED BY SCOTT A. THOMPSON OSDH SEPTEMBER 1989.

FIBERCAST SITE



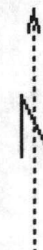
FIBERCAST

SAND SPRINGS
SITE



ARKANSAS RIVER

TULSA



S24. T19N. R12E

STREAM FLOW



JENKS

THERE ARE NO KNOWN DRINKING WATER
OR IRRIGATION INTAKES WITHIN 15 MILES
DOWNSTREAM. RECREATIONAL BOATING
AND FISHING MAY OCCUR ANYWHERE
WITHIN THE 15 MILES.

S32. T18N. R13E

NOT-TO-SCALE

● INDUSTRIAL INTAKES

PA QUESTIONNAIRE

NAME: Scott Thompson

LOCATION: 25 S. Main, Sand Springs, OK

SITE NAME: Fibercast

DATE: September 6, 1989

MAJOR CONSIDERATIONS

- A. DOES ANY QUALITATIVE OR QUANTITATIVE INFORMATION EXIST THAT MAY INDICATE AN OBSERVED RELEASE TO AIR, GROUNDWATER, SOIL OR SURFACE WATER? No

Describe: An upgradient monitor well was sampled but any downgradient wells are too far from this facility to clearly document any possible releases.

- B. IF THE ANSWER TO #1 IS YES, IS THERE EVIDENCE OF DRINKING WATER SUPPLY CONTAMINATION OR ANY OTHER TARGET CONTAMINATION (I.E., FOOD CHAIN, RECREATION AREAS, OR SENSITIVE ENVIRONMENTS)?

Describe:

- C. ARE THERE SENSITIVE ENVIRONMENTS WITHIN A 4-MILE RADIUS OR L5 DOWNSTREAM MILES OF THE SITE? Yes

If yes, describe if any of the following apply:

- Multiple sensitive environments?
- Federally designated sensitive environment (s)? Interior Least Tern and Bald Eagle habitat along Arkansas River. A Least Tern nesting project is being undertaken in the Tulsa area.
- Sensitive environment(s) downstream on a small or slow flowing surface water body?

- D. IS THE SITE LOCATED IN AN AREA OF KARST TERRAIN? No

Describe:

- E. IS THE AQUIFER UNDERLYING THE SITE A "SOLE SOURCE" AQUIFER AS DESIGNATED ACCORDING TO SECTION L424(E) OF THE SAFE DRINKING WATER ACT? No

Describe:

- F. DOES ANY QUALITATIVE OR QUANTITATIVE INFORMATION EXIST THAT PEOPLE LIVE OR ATTEND SCHOOL ON ONSITE CONTAMINATED PROPERTY? No

Describe:

SITE INFORMATION

SITE NAME: Fibercast Company

ADDRESS: P.O. Box 968

CITY: Sand Springs STATE: OK ZIP: 74063

COUNTY: Tulsa

EPA ID: OKD007217748

LATITUDE: 36 08'09"N

LONGITUDE: 96 06'18"W

2. DIRECTIONS TO SITE (from nearest public road): The site is located at 25 S. Main in Sand Springs.
3. SITE OWNERSHIP HISTORY (use additional sheets, if necessary):

A. Name of current owner: Fibercast

Address: 25 S. Main

City: Sand Springs

County: Tulsa State: OK Zip: 74063

Dates: From 1981 To Present

Phone: (918) 245-6651

B. Name of previous owner: Youngstown Steel & Tube Co.

Address: Unknown

City: County: State: Zip:

Dates: From 1964 To 1981 Phone:

Source of ownership data: Interview with operator, county land records. (1,2)

4. TYPE OF OWNERSHIP (Check all that apply):

☒ Private ☐ State ☐ Municipal
☐ Federal ☐ County ☐ Other (describe):

NAME OF SITE OPERATOR: Fibercast Company

ADDRESS: 25 S. Main

CITY: Sand Springs COUNTY: Tulsa STATE: OK ZIP: 74063

PHONE: (918) 245-6651

BACKGROUND/OPERATING HISTORY

6. DESCRIBE OPERATING HISTORY OF SITE: Fibercast has operated fiberglass pipe manufacturing company at this location since about 1948. Prior to that a portion of the property may have been a railroad maintenance or depot facility. A cotton warehouse was located on a portion of the property.

Source of information: Interview with operator. (1)

7. DESCRIBE SITE AND NATURE OF SITE OPERATIONS (PROPERTY SIZE, MANUFACTURING, WASTE DISPOSAL, STORAGE, ETC.): The site is approximately 16.5 acres in size. The facility was under RCRA intermin status and maintained a hazardous waste storage facility for accumulation of wastes for greater the 90 days. They have since petitioned to drop this status in favor of generator only. Waste acetone is recycled on site and reused. Product and waste solvents are stored in underground storage tanks and drums.

Source of information: RCRA file. (3,4,5,6,7)

8. DESCRIBE ANY EMERGENCY OR REMEDIAL ACTIONS THAT HAVE OCCURRED AT THE SITE: There is no evidence of any actual remediation of soils or groundwater contamination.

Source of information: State RCRA file (3,4,5,6,7)

9. ARE THERE RECORDS OR KNOWLEDGE OF ACCIDENTS OR SPILLS INVOLVING SITE WASTES? No

Describe: There are no records of spills or accidents in the State RCRA file.

Source of information: State RCRA file. (3,4,5,6,7)

10. DISCUSS EXISTING SAMPLING DATA AND BRIEFLY SUMMARIZE DATA QUALITY (E.G., SAMPLE OBJECTIVE, AGE/COMPARABILITY, ANALYTICAL METHODS, DETECTION LIMITS AND QA/QC): A sample was collected of monitor well #18 on 5/16/89. Sampling of monitor well #18 was conducted during the remedial investigation of the Sand Springs NPL site. The samples were analyzed by OSDH and all appropriate QA/QC procedures followed.

Source of information: Sand Springs RI Report. Sample results (20,21)

WASTE CONTAINMENT/HAZARDOUS SUBSTANCE IDENTIFICATION

11. FOR EACH SOURCE AT THE SITE, SUMMARIZE ON TABLE 1 (PAGE 12):
- 1) Methods of hazardous substance disposal, storage or handling;
 - 2) Size/volume/area of all features/structures that might contain hazardous waste;
 - 3) Condition/integrity of each storage disposal feature or structure;
 - 4) Types of hazardous substances handled.
12. BRIEFLY EXPLAIN HOW WASTE QUANTITY WAS ESTIMATED (E.G., HISTORICAL RECORDS OR MANIFESTS, PERMIT APPLICATIONS, AIR PHOTO MEASUREMENTS, ETC): Waste quantities are estimated from closure plans in the State RCRA file.

Source of information: State RCRA file. (22,23)

13. DESCRIBE ANY RESTRICTIONS OR BARRIERS ON ACCESSIBILITY TO ONSITE WASTE MATERIALS: The site is fenced and access is well restricted.

Source of information: Visual observation. (1)

GROUNDWATER CHARACTERISTICS

14. ANY POSITIVE OR CIRCUMSTANTIAL EVIDENCE OF A RELEASE TO GROUNDWATER? No

Describe: Potential exists due to the presence of products and wastes stored in underground storage tanks but no evidence of a groundwater release from this specific site is known to exist.

Source of information: RCRA file. Sand Springs RI. (3,4,5,6,7,20)

15. ON TABLE 2 (PAGE 13), GIVE NAMES, DESCRIPTIONS, AND CHARACTERISTICS OF GEOLOGIC/HYDROGEOLOGIC UNITS UNDERLYING THE SITE.

16. Net precipitation: -14 inches, user's manual (8)

SURFACE WATER CHARACTERISTICS

17. ARE THERE SURFACE WATER BODIES WITHIN 2 MILES OF THE SITE? Yes

_____ Ditches _____ Lakes _____ Pond
_____ Creeks X Rivers _____ Other _____

18. DISCUSS THE PROBABLE SURFACE RUNOFF PATTERNS FROM THE SITE TO SURFACE WATERS: Runoff from the site would enter city storm drainages and run into a holding pond. From there it would be pumped over the levee into the Arkansas River. (9)

19. PROVIDE A SIMPLIFIED SKETCH OF SURFACE RUNOFF AND SURFACE WATER FLOW SYSTEM FOR 15 DOWNSTREAM MILES (SEE ITEM #36).

20. ANY POSITIVE OR CIRCUMSTANTIAL EVIDENCE OF SURFACE WATER CONTAMINATION? No

Describe:

Source of information:

21. ESTIMATE THE SIZE OF THE UPGRADIENT DRAINAGE AREA FROM THE SITE: 40 acres

Source of information: USGS Topographical Map (9)

22. DETERMINE THE AVERAGE ANNUAL STREAM FLOW OF DOWNSTREAM SURFACE WATERS

Water body: Arkansas River Flow: 6790 cfs
Water body: _____ Flow: _____ cfs
Water body: _____ Flow: _____ cfs

Source of information: Corps of Engineers, Tulsa, Oklahoma. (10)

23. IS THE SITE OR PORTIONS THEROF LOCATED IN SURFACE WATER? No

24. IS THE SITE LOCATED IN A FLOODPLAIN (INDICATE FLOOD FREQUENCY)? No
A large levee along the Arkansas River has altered the historical flood plain of the river. However the site might be in the 500 year flood plain.

25. IDENTIFY AND LOCATE (SEE ITEM #36) ANY SURFACE WATER RECREATION AREA WITHIN 15 DOWNSTREAM MILES OF THE SITE: None known.
Fishing and boating may occur along the river within the 15 miles.

Source of information: USGS Topographical map. (9)

26. TWO YEAR 24-HOUR RAINFALL: 4.0 inches (12)

TARGETS

27. DISCUSS GROUNDWATER USAGE WITHIN FOUR MILES OF THE SITE: There are approximately 319 private users of groundwater for a drinking water supply within 4 miles of the site.

Source of information: Well logs. (11)

28. SUMMARIZE THE POPULATION SERVED BY GROUNDWATER ON THE TABLE BELOW:

<u>Distance</u> (miles)	<u>Population</u>
0- $\frac{1}{4}$	<u>0</u>
$\frac{1}{4}$ - $\frac{1}{2}$	<u>0</u>
$\frac{1}{2}$ -1	<u>0</u>
1-2	<u>266</u>
2-3	<u>19</u>
3-4	<u>34</u>

Source of information: Well logs. (11)

29. IDENTIFY AND LOCATE (SEE ITEM #36) POPULATION SERVED BY SURFACE WATER INTAKES WITHIN 15 DOWNSTREAM MILES OF THE SITE: There are no known drinking water or irrigation intakes within 15 downstream miles of the site. There are 2 industrial intakes within that distance. These permits are held by Public Service Company of Oklahoma, a utility.

Source of information: Oklahoma Water Resources Board. (13)

30. DESCRIBE AND LOCATE FISHERIES WITHIN 15 DOWNSTREAM MILES OF THE SITE (I.E., PROVIDE STANDING CROP OR PRODUCTION AND ACREAGE, ETC.): Records of fish production for the Arkansas River and could not be found. Default values should be used.

Source of information:

31. IF SURFACE WATER RECREATION AREAS EXIST, CHOOSE RECREATIONAL USE CATEGORY, AND THEN DETERMINE THE POPULATION WITHIN THE ASSIGNED RADIUS FROM THE RECREATION AREA. (USE GEMS TO ALLOCATE INTO DISTANCE RINGS).

- a. Capital use and access improvements _____ (assigned radius=125 miles)
- b. Access improvements only _____ (assigned radius=80 miles)
- c. Observed use only _____ (assigned radius=40 miles)
- d. None of the above apply and access is not restricted X (assigned radius=10 miles)

<u>Distance</u> (miles)	<u>Population</u>
0-5	<u>199,000 est</u>
5-10	<u>180,000 est</u>
10-20	_____
20-40	_____
40-60	_____
60-80	_____
80-100	_____
100-125	_____

32. DETERMINE THE DISTANCE FROM THE SITE TO THE NEAREST OF EACH OF THE FOLLOWING LAND USES.

<u>Description</u>	<u>Distance (miles)</u>
Commercial/Industrial/ Institutional	<u>onsite</u>
Single Family Residential	<u>0.02</u>
Multi-Family Residential	<u>0.25</u>
Park	<u>0.75</u>
Agricultural	<u>1.5 est.</u>

Source of information: U.S.G.S. Topographical maps. Aerial photographs (9,24)

33. SUMMARIZE THE POPULATION WITHIN A FOUR-MILE RADIUS OF THE SITE:

<u>Distance (miles)</u>	<u>Population</u>
onsite	<u>275 employees</u>
0- $\frac{1}{4}$	<u>500</u>
$\frac{1}{4}$ - $\frac{1}{2}$	<u>500</u>
$\frac{1}{2}$ -1	<u>7000</u>
1-2	<u>10000</u>
2-3	<u>10000</u>
3-4	<u>20000</u>

Source of information: Estimated from U.S.G.S. Topographical map. The population density is relatively high in the Sand Springs (total pop. = 13,000) and Tulsa (total pop. = 366,000) areas. (1,9)

OTHER REGULATORY INVOLVEMENT

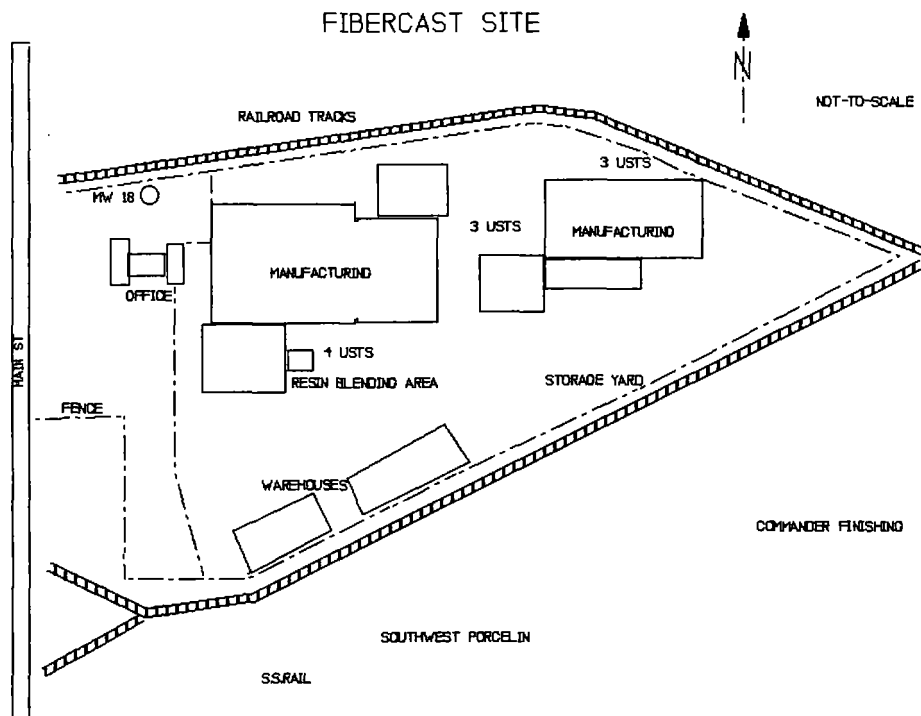
34. DISCUSS ANY PERMITS/VIOLATIONS:

County:
 State: RCRA violations see reference 3
 Federal: RCRA violations see reference 3
 Other: Industrial Pretreatment discharge permit to sanitary sewer. City of Sand Springs.

Source of information: City of Sand Springs (14)

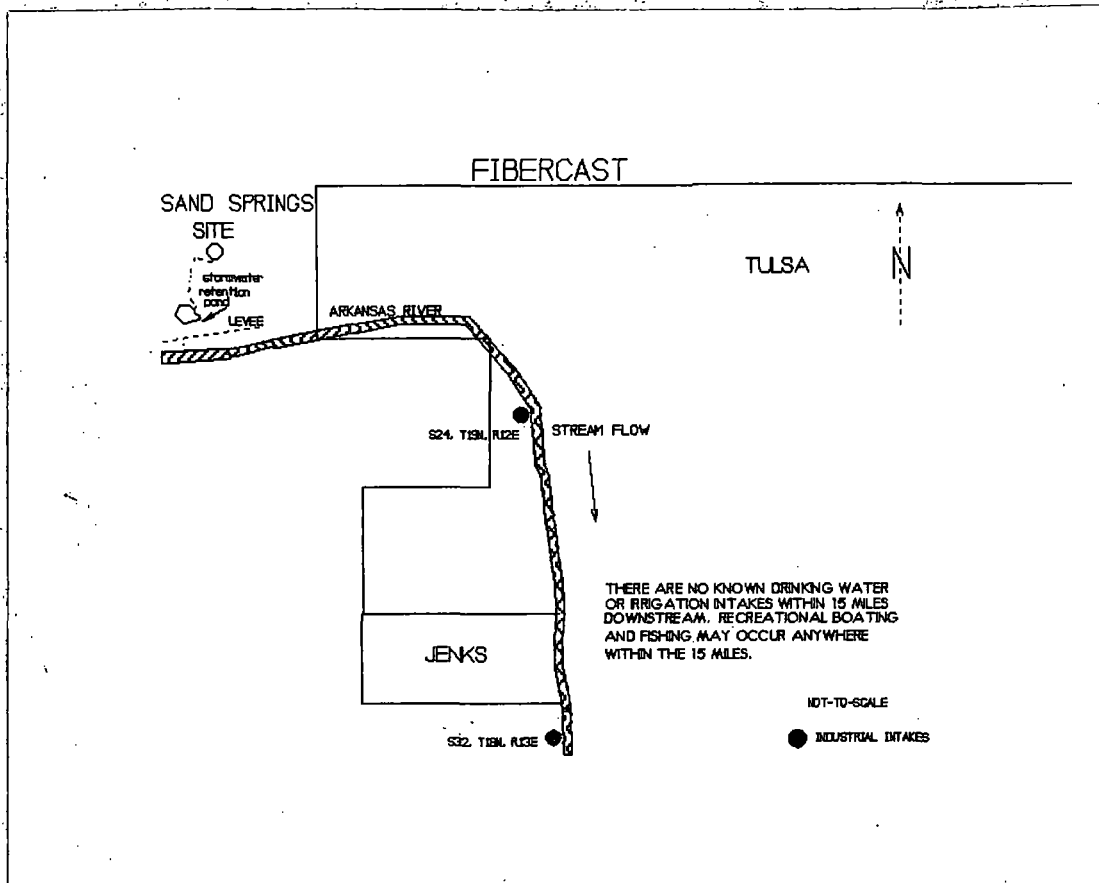
35. **SKETCH OF SITE**

Include all pertinent features, e.g., wells, storage areas, underground storage tanks, waste areas, buildings, access roads, areas of ponded water, etc. Attach additional sheets with sketches of enlarged areas, if necessary.



36. SURFACE WATER FEATURES

Provide a simplified sketch of surface runoff and surface water flow system for 15 downstream miles. Include all pertinent features, e.g., intakes, recreation areas, fisheries, gauging stations, etc.



WASTE CONTAINMENT AND HAZARDOUS SUBSTANCE IDENTIFICATION¹

SOURCE TYPE	SIZE (Volume/Area)	ESTIMATED WASTE QUANTITY	SPECIFIC COMPOUNDS	CONTAINMENT ²	SOURCE OF INFORMATION
Plastic Process waste		48 drums	vinyl ester	Stored in drums (not noted to be leaking during RCRA inspection)	RCRA file Closure estimate (3)
Unknown		25 drums	methacrylic acid	Stored in drums (not noted to be leaking during RCRA inspection)	RCRA file Closure estimate (3)
Epoxy process waste		12 drums	unknown	Stored in drums (not noted to be leaking during RCRA inspection)	RCRA file, closure estimate (3)
Other waste		11 drums	unknown	Stored in drums (not noted to be leaking during RCRA inspection)	RCRA file, closure estimate (3)
Waste acetone		2800 gallons	Acetone	Stored in under- ground storage tanks.	RCRA file, closure estimate (3)

¹ Use additional sheets if necessary

² Evaluate containment of each source from the perspective of each migration pathway (e.g., ground water pathway - nonexistent, natural or synthetic liner, corroding underground storage tank; surface water - inadequate freeboard, corroding bulk tanks; air - unstabilized slag piles, leaking drums, etc.).

TABLE 2
HYDROGEOLOGIC INFORMATION¹

STRATA NAME/DESCRIPTION	THICKNESS (ft.)	DEPTH TO WATER (ft.)	HYDRAULIC CONDUCTIVITY (cm/sec)	TYPE OF DISCONTINUITY ²	SOURCE OF INFORMATION
Alluvium of the Arkansas River unconsolidated deposits of sand, silt, clay and gravel.	30-80	19 ft.	10 ⁻²		Sand Springs Remedial Investigation USGS Hydrologic Atlas (15,20)

1 Use additional sheets if necessary

2 Identify the type of discontinuity within four-miles from the site (e.g., river, strata "pinches out", etc.)

PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/11:20 AM/EAST

COMMENTS

STORAGE TANKS



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/11:30 AM/NORTH

COMMENTS

3 USTs FOR ACETONE, MIN-
ERAL SPIRITS, AND ONE
NOT USED CURRENTLY



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/11:50 AM/NORTH

COMMENTS

UST FOR SCRAP ACETONE



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/12:00 NOON/EAST

COMMENTS

3 USTs FOR SCRAP ACETONE
AND TWO NOT USED CUR-
RENTLY



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/12:02PM/SOUTH

COMMENTS

OIL PRODUCT DRUMS NEXT
TO BUILDING



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/12:02 PM/WEST

COMMENTS

TANKS AND DRUMS FOR
EPOXY AND VINYL RESIN
MANUFACTURING



PHOTOGRAPHER/WITNESS

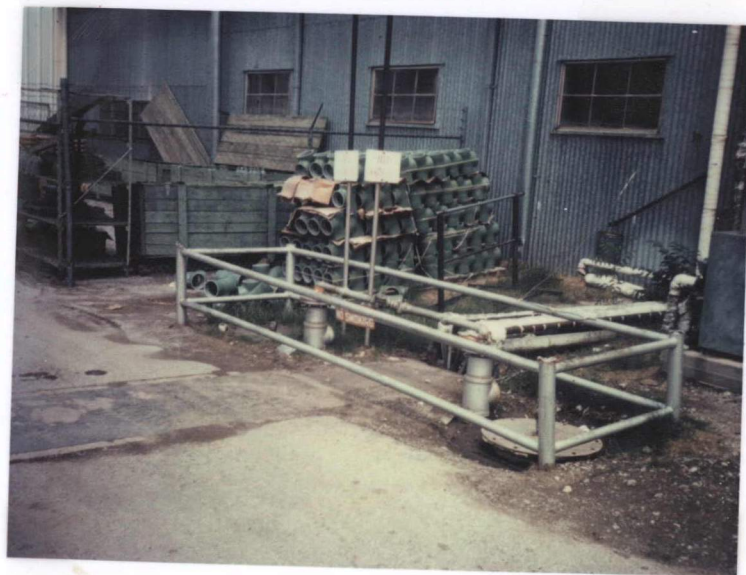
SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/12:04PM/NORTHWES
T

COMMENTS

UST FOR STYRENE



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/12:04 PM/SOUT-
HWEST

COMMENTS

3 RESIN USTs



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/12:05PM/SOUTHWES
T

COMMENTS

PIPE STORAGE YARD



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/1:30 PM/WEST

COMMENTS

FROM MONITOR WELL #18



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/1:30PM/EAST

COMMENTS

FROM MONITOR WELL #18



PHOTOGRAPHER/WITNESS

SCOTT A. THOMPSON/DENNIS
HREBEC

DATE/TIME/DIRECTION

5-16-89/1:30 PM/SOU-
THEAST

COMMENTS

FROM MONITOR WELL #18



Fibercast References

1. Memorandum From: Scott A. Thompson, OSDH. To: File. Subject: Reconnaissance of the Fibercast Site. May 17, 1989.
2. Memorandum From: Scott A. Thompson, OSDH. To: File. Subject: Tulsa County land records, information about Fibercast site.
3. RCRA warning letter, from Don Hensch, OSDH to E.D. Edminister, Fibercast Company. December 14, 1981.
4. RCRA warning letter from Don Hensch, OSDH to Larry Moore, Fibercast Company. January 4, 1983.
5. RCRA warning letter from William Gordon, OSDH to Keith D. Maguire, Fibercast Company. October 24, 1983.
6. RCRA warning letter from Robert A. Rabatine, OSDH to Larry Moore, Fibercast Company. March 16, 1987.
7. RCRA Notice of Violation letter from Robert A. Rabatine, OSDH to Larry Moore, Fibercast Company, August 9, 1988.
8. Uncontrolled Hazardous Waste Site Ranking System: A Users Manual. 47 FR 31219-31243, 16 July 1982 (Appendix A, CERCLA).
9. United States Geographical Survey 7.5 minute topographical map. Sand Springs Quadrangle. Photo revised 1983.

United States Geographical Survey 7.5 minute topographical map. Sapulpa North, OK. Photo revised 1983.

United States Geographical Survey 7.5 minute topographical map. Lake Sahoma, OK. Photo revised 1967.

United States Geographical Survey 7.5 minute topographical map. Wekiwa, OK Photo revised 1973.
10. Letter transmitting flow rates of the Arkansas River, from David Fisher, Tulsa District Corps of Engineers to Scott Thompson, OSDH. June 9, 1989.
11. Multi-Purpose Water Well Reports. Oklahoma Water Resources Board. (Not attached)
12. Herschfield, D.M., 1961, Rainfall Frequency Atlas of the United States. U.S. Weather Bureau Technical Paper No. 40.
13. Memorandum. From: Scott A. Thompson, OSDH. To: File. Subject: Surface water intakes on the Arkansas River. June 8, 1989.

14. Record of Communication. To: David Bonchard, City of Sand Springs. From: Scott Thompson, OSDH Subject: City permit for Fibercast Company. June 28, 1989.
15. Reconnaissance of the Water Resources of the Enid Quadrangle North-Central Oklahoma by Bingham, Roy H. and Berryman, Oklahoma Geological Survey Hydrologic Atlas 7, 1980.
16. Letter. From: Larry Moore, Fibercast. To: Scott Thompson, OSDH. May 17, 1989.
17. Endangerment Assessment Report for the Operable Unit, Sand Springs Petrochemical Complex Superfund site, Tulsa County, Oklahoma by Dr. Raymond D. Harbison for the Oklahoma State Department of Health. May 1988.
18. U.S. Fish and Wildlife Service. Endangered Species of Texas and Oklahoma. 1987 (with 1988 addendum).
19. Record of Communication. To: Alan Ratzlaff, U.S. Fish and Wildlife Service, Tulsa, OK. From: Scott Thompson, OSDH. Subject: Interior Least Tern project in the Tulsa area. June 7, 1989.
20. Sand Springs Petrochemical Complex Superfund site, Tulsa County, Oklahoma Main Site Operable Unit Remedial Investigation Report, Volumes I and II. Oklahoma State Department of Health. March 1988.
21. Results of monitor well samples collected May 16, 1989 by OSDH.
22. Hazardous Waste Management Facility Closure Plan for Fibercast Company. May 1, 1987.
23. Hazardous Waste Management Closure Plan for Fibercast Company 1982.
24. Aerial Reconnaissance of the Sand Springs Hazardous Waste Site Sand Springs, Oklahoma. Environmental Monitoring Systems Laboratory. Las Vegas, NV, April 1981.

REFERENCE 1

MEMORANDUM

DATE: May 17, 1989

TO: File

FROM: Scott A. Thompson *SAT*
Environmental Specialist

SUBJECT: Preliminary Assessment at Fibercast

On May 16, 1989, Dennis Hrebec and I went to the Fibercast facility in Sand Springs, Oklahoma. We met with Larry Moore and Raymond Breshears of Fibercast. We discussed the plant layout and processes. This company manufactures fiberglass reinforced pipe. Fibercast does use some solvents including acetone, methylene chloride, styrene, and mineral spirits. They are a RCRA generator. The company has been in operation at this location since about 1948. Mr. Breshears indicated that part of the property may have been used for railroad maintenance prior to Fibercast's existence. Fibercast has a permit with the City of Sand Springs to discharge their waste waters to the sanitary sewers. Waste acetone is recycled.

Mr. Moore took us on a tour of the facility and no obvious sources of groundwater contamination were noted. There are several underground storage tanks at different locations on the site. Some are used to store acetone, waste acetone, vinyl ester resins or epoxy resins, mineral spirits, styrene, and some are no longer in use. Several pictures were taken of the facility.

A sample was collected of monitor well #18, which is just north of the Fibercast office building. Volatile and extractable organics samples were collected in triplicate. A sample was also collected for metals analysis and a field blank was taken at the same location. The weather was warm and sunny with a light breeze from the southeast.

REFERENCE 2

MEMORANDUM

SEPTEMBER 1, 1989

TO: FILE

FROM: SCOTT A. THOMPSON

SUBJECT: FIBERCAST OWNERSHIP HISTORY FROM THE TULSA CO. LAND RECORDS

The records of land ownership in Tulsa County indicate that Fibercast acquired the property from Continental Emsco on 6/24/81 by quick claim deed. Five days earlier on 6/19/81 Continental Emsco had acquired it from Youngstown Steel and Tube Co. The Sand Springs Home had conveyed portions of the property by general warranty deed to Youngstown Steel on 6/10/64, 1/3/67, 8/4/70, and 9/3/80. The Sand Springs Home had acquired the property in the early 1900's. It is unclear exactly when the Sand Springs Home acquired the property but before 1910 it was probably all owned by the Creek Nation. Sometime around 1929 Sand Springs Gin and Milling may have owned a portion of the property.

REFERENCE 3

State Board of Health

ROBERT D. McCULLOUGH, D.O., PRESIDENT
EDWARD H. FITE, JR., M.D., VICE PRESIDENT
HAROLD A. TOAZ, SECRETARY
WALLACE BYRD, M.D.
JAMES A. COX, JR., M.D.
LINDA M. JOHNSON, M.D.
WALTER SCOTT MASON, III
W. A. "TATE" TAYLOR
JOHN B. CARMICHAEL, D.D.S.



Commissioner

JOAN K. LEAVITT, M.D.

Oklahoma
State Department of Health

1000 Northeast 10th Street
Post Office Box 53551
Oklahoma City, Oklahoma 73152

December 14, 1981

Mr. E.D. Edmisten, President
Fibercast Company
P.O. Box 968
Sand Springs, Oklahoma 74063

Dear Mr. Edmisten:

Thank you for the time and courtesy afforded my inspectors, Al Coulter and Suzanne Jones, by your staff, Mr. Bruce Ford, Mr. Owen Brant, Mr. Larry Cagle and Mr. Larry Moore, during the Oklahoma Controlled Industrial Waste compliance inspection performed 8 December, 1981, at your Sand Springs facility.

As a result of that inspection the following areas of non-compliance were observed:

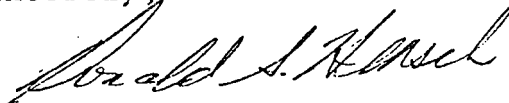
- 1) On the TSD Checklist, Section A, Item 10,c, there are no "No Smoking" signs posted in the ignitable waste storage area (Rules and Regulations for Industrial Waste Management 2.11 in accordance with 40 CFR 265.17). You must place these signs on the fence.
- 2) Section C, Item 6, the facility has not supplied local police and fire departments with a copy of the contingency plan (Rules and Regulations for Industrial Waste Management 2.11 in accordance with CFR 265.52). You must supply these agencies with a copy of this document.
- 3) Section D, Item 5,b,8, the operating record does not contain closure cost estimates (Rules and Regulations for Industrial Waste Management 2.11 in accordance with 40 CFR 265.73). You must make a closure cost estimate for the storage area and incorporate it into the operating record.
- 4) On the Container Checklist, Item 8, ignitable wastes are stored less than 15 meters from property line (Rules and Regulations for Industrial Waste Management 2.11 in accordance with 40 CFR 265.170). These wastes must be moved at least 15 meters from property line. Your proposal

December 14, 1981

to move these wastes to the front of the storage area will place them more than 15 meters from the property line.

Please have these areas of non-compliance corrected within thirty (30) days. If there are any questions concerning this matter, please call Al Coulter at (405) 271-5338.

Sincerely,



Donald A. Hensch, P.E.
Director, Industrial Waste Division

DAH:AC:m1

Enclosure

cc: Tulsa City/County Health Department

REFERENCE 4

State Board of Health

ROBERT D. McCULLOUGH, D.O., PRESIDENT
EDWARD H. FITE, JR., M.D., VICE PRESIDENT
HAROLD A. TOAZ, SECRETARY
WALLACE BYRD, M.D.
JOHN B. CARMICHAEL, D.D.S.
JAMES A. COX, JR., M.D.
LINDA M. JOHNSON, M.D.
WALTER SCOTT MASON, III
W. A. "TATE" TAYLOR



Commissioner

JOAN K. LEAVITT, M.D.

Oklahoma
State Department of Health

1000 Northeast 10th Street
Post Office Box 53551
Oklahoma City, Oklahoma 73152

January 4, 1983

Fibercast Company
25 South Main Street
Sand Springs, Oklahoma 74063
Attention: Larry Moore

Dear Mr. Moore:

Thank you for the time and courtesy given members of my staff during the recent Controlled Industrial Waste Compliance Inspection. We appreciate your cooperation in this field and count on your prompt attention to the areas of non-compliance. The following areas of non-compliance must be corrected within thirty (30) days.

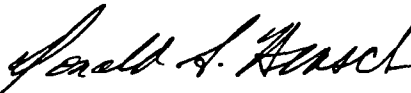
1. The Drums within the storage area are not correctly labeled. They must be marked and labeled to meet the requirements of Rule 3.15.
2. The facility does not have a written analysis plan. This plan must be formulated and followed to meet the requirements of Rule 7.1.6 which incorporates 40 CFR 265.13 by reference.
3. No Personnel Training Records were available. This training and records of same are required by Rule 7.1.6 which incorporates 40 CFR 265.16 by reference. A program must be formulated and carried out to fully meet the requirements of this regulation.
4. The Closure Plan for the facility did not address all the design features. The tank used to store controlled waste prior to recycle must be addressed in the closure plan. This plan is required by Rule 7.1.6 which incorporates 40 CFR 265.111 and 265.112 by reference.
5. The Closure Cost Estimate must be updated to reflect the changes in the closure plan. This estimate must also be adjusted for inflation within thirty (30) days of the anniversary of the first cost estimate. These steps are required by 40 CFR 265.142 as incorporated by Rule 7.1.6.
6. The operator has not filed Controlled Industrial Waste Receiving Site Monthly Reports. These reports are to be submitted on ODH Form No. 844 a supply of which are enclosed. This report is required by Rule 7.6.

Fibercast Company
January 4, 1983
Page 2

The following is offered to help explain the interface between receiving site monthly reports and generators quarterly reports. The waste generated going into storage should be reported on both the monthly report and the quarterly report. The receiving site permit number in this case is IS72904. This is the Interim Status number assigned to your facility until such time as a permit is issued. As you ship waste out of storage to off-site disposal it should be included on the quarterly report using the disposal site permit number. For the purposes of the quarterly report use manifest number 000001 and hauler number 1000 for waste going into on-site storage.

Please note, your financial responsibility requirements are being evaluated by our office. If there are any problems you will be contacted. If there are any questions contact Curtis Baker or any Environmental Specialist at (405) 271-5338.

Very truly yours,



Donald A. Hensch, P.E.
Director, Industrial Waste Division

DAH/CB/js

Enclosure

REFERENCE 5

State Board of Health

EDWARD H. FITE, JR., M.D., PRESIDENT
W. A. "TATE" TAYLOR, VICE-PRESIDENT
HAROLD A. TOAZ, SECRETARY
WALLACE BYRD, M.D.
JOHN B. CARMICHAEL, D.D.S.
JAMES A. COX, JR., M.D.
LINDA M. JOHNSON, M.D.
ROBERT D. McCULLOUGH, II, D.O.
WALTER SCOTT MASON, III



file copy
Commissioner

JOAN K. LEAVITT, M.D.

Oklahoma

State Department of Health

1000 Northeast 10th Street
Post Office Box 53551
Oklahoma City, Oklahoma 73152

October 24, 1983

Mr. Keith D. Maguire
General Manager
Fibercast Company
P.O. Box 968
Sand Springs, Oklahoma 74063

Dear Mr. Maguire:

Under Rule 7.1.9, Rules and Regulations for Industrial Waste Management (which incorporates 40 CFR 264 and 265), Fibercast Company is required to submit information that demonstrates that it is financially capable of bearing the cost of closing its Oklahoma facility. This requirement went into effect in June, 1982.

On February 14, 1983, the Department received a letter (dated February 11, 1983) from Larry Moore indicating consideration by LTV Corporation of compliance with the financial responsibility requirements through use of a financial test and corporate guarantee. This was never carried through, prompting a letter from the Department Attorney. Fibercast Company responded by submitting a Financial Guarantee Bond on June 6, 1983, in partial fulfillment of the financial responsibility requirements. Fibercast failed to establish a standby trust fund in concert with the Financial Guarantee Bond, as stipulated in 40 CFR 265.143(b) (FR-15065, April 7, 1982).

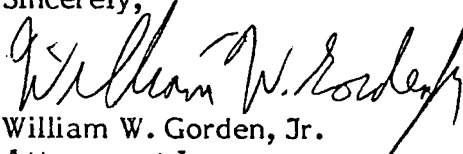
Subsequent telephone contact with Mr. Larry Moore indicated that the standby trust was being developed and that (per letter dated August 8, 1983) Fibercast would be forwarding the document to the bank for execution. Mr. Maguire indicated, during a telephone conversation on October 4, 1983, that Fibercast Company had decided not to enter into the standby trust agreement for economic considerations. At this time Mr. Maguire requested additional copies of all applicable regulations so the options open to Fibercast could once again be reviewed. Copies of all regulations were mailed October 5, 1983.

The fact remains that Fibercast Company is not in compliance with established financial responsibility requirements, as stipulated in Rule 7.1.9, and has never been in compliance since the effective date of June, 1982. The Department has been more than indulgent in Fibercast Company's continued

Mr. W. J. Lamberton
October 24, 1983
Page Two

failure to satisfy their obligation. Accordingly, if within thirty (30) days from the date of this letter, Fibercast Company fails to completely and fully satisfy their financial responsibility requirements under Rule 7.1.9, the Department will contact David Moss, District Attorney for Tulsa County, and ask for injunctive relief to prohibit operation of your business until compliance is effected.

Sincerely,

A handwritten signature in dark ink, appearing to read "William W. Gorden, Jr.", written in a cursive style.

William W. Gorden, Jr.
Attorney at Law
Environmental Health Services

WWG/RAR/sw

REFERENCE 6

Joan K. Leavitt, M.D.
Commissioner

**OKLAHOMA STATE
DEPARTMENT OF HEALTH**

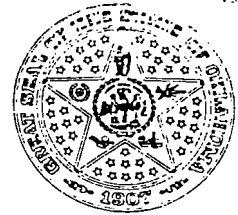
Board of Health

James A. Cox, Jr., M.D.
President
Linda M. Johnson, M.D.
Vice President
Robert D. McCullough, II D.O.
Secretary/Treasurer

Wallace Byrd, M.D.
John B. Carmichael, D.D.S.
Ernest D. Martin
Walter Scott Mason, III
Edwin L. Pointer, M.D.
W. A. "Tate" Taylor

**P.O. BOX 53551
1000 N.E. TENTH
OKLAHOMA CITY, OK 73152**

AN EQUAL OPPORTUNITY EMPLOYER



March 16, 1987

CERTIFIED MAIL

Larry W. Moore
Industrial Engineer
Fibercast Company
25 S. Main
P.O. Box 568
Sand Springs, OK 74063

Re: OKD007217748

Dear Mr. Moore:

This is a **WARNING LETTER**. On January 22, 1987, the Tulsa City/County Health Department performed a compliance evaluation inspection of Fibercast Company to determine compliance with the Oklahoma Controlled Industrial Waste Disposal Act (OCIWDA) and the Rules and Regulations for Industrial Waste Management (Rule or Rules). As a result of this inspection, the Department has determined that the following areas of non-compliance exist:

1. Fibercast Company failed to mark drums of controlled industrial waste with the beginning date of accumulation and the words "controlled industrial waste". As a generator, you must clearly indicate the accumulation date and label each container, as required by Rule 3.16(b) and 40 CFR 262.34(a)(2) and 40 CFR 262.34(a)(3).
2. Fibercast Company has not notified local hospitals of the properties of controlled industrial waste generated, as required by Rule 3.16(a) and 40 CFR 265.37. You must familiarize local hospitals with the properties of controlled industrial waste that Fibercast Company generates and the types of injuries that could result from each waste.
3. Fibercast Company has failed to supply all local authorities and State response teams with a copy of Fibercast Company's contingency plan, as required by Rule 3.16(a) and 40 CFR 265.53(b). A copy of the contingency plan and all revisions must be submitted to local police and fire departments, hospitals and State and local emergency response teams that may be called upon to provide emergency services.
4. Fibercast Company has failed to implement a program to insure containment of waste placed in underground storage tanks. The level of waste in each tank should be checked daily, as required by Rule 3.16(e) and 40 CFR 265.194(a)(3). A method for inspecting or otherwise determining the integrity of the construction materials of the tanks should also be implemented, as required by Rule 3.16(e) and 40 CFR 265.194(a)(4).

REFERENCE 7

Joan K. Leavitt, M.D.
Commissioner

Board of Health

Linda M. Johnson, M.D.
President
Ernest D. Martin, Ph.D.
Vice-President
Walter Scott Mason, III
Secretary-Treasurer

Wallace Byrd, M.D.
John B. Carmichael, D.D.S.
Dan H. Fieker, D.O.
Burdge F. Green, M.D.
James L. Henry

OKL
DEPARTMENT OF HEALTH

P.O. BOX 53551
1000 N.E. TENTH
OKLAHOMA CITY, OK 73152

AN EQUAL OPPORTUNITY EMPLOYER



August 9, 1988

OKD007217748
Fibercast Co. Div. of Youngstown
Attn: Larry Moore
P. O. Box 968
Sand Springs, OK 74063

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Dear Hazardous Waste Handler:

Earlier this year you were mailed a 1987 Hazardous Waste Report (1987 Biennial Report) package. This Notice of Violation is to warn you that we have not received the report EPA Form 8700-13B which was due by June 30, 1988. Submission of the report is required by Rule 210 of the Rules and Regulations for Industrial Waste Management and 40 CFR 272.44 or 40 CFR 265.75 or 40 CFR 264.75.

This item of non-compliance is a serious violation. You must take all necessary actions to correct this violation by submitting the required report to this Department within thirty (30) days of receipt of this letter. By complying, you may avoid legal action including an administrative order which may assess fines for failure to comply with the Oklahoma Controlled Industrial Waste Disposal Act and the Rules and Regulations for Industrial Waste Management.

If you have any questions or require further information, please contact Al Coulter at (405) 271-7067.

Sincerely,

Robert A. Rabatine
Program Coordinator
Industrial Waste Division

RAR/AC/bls

MAILED
8/19/88
5:42 PM

REFERENCE 8

Uncontrolled Hazardous Waste Site Ranking System

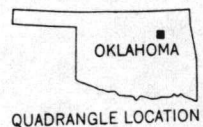
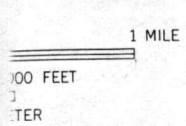
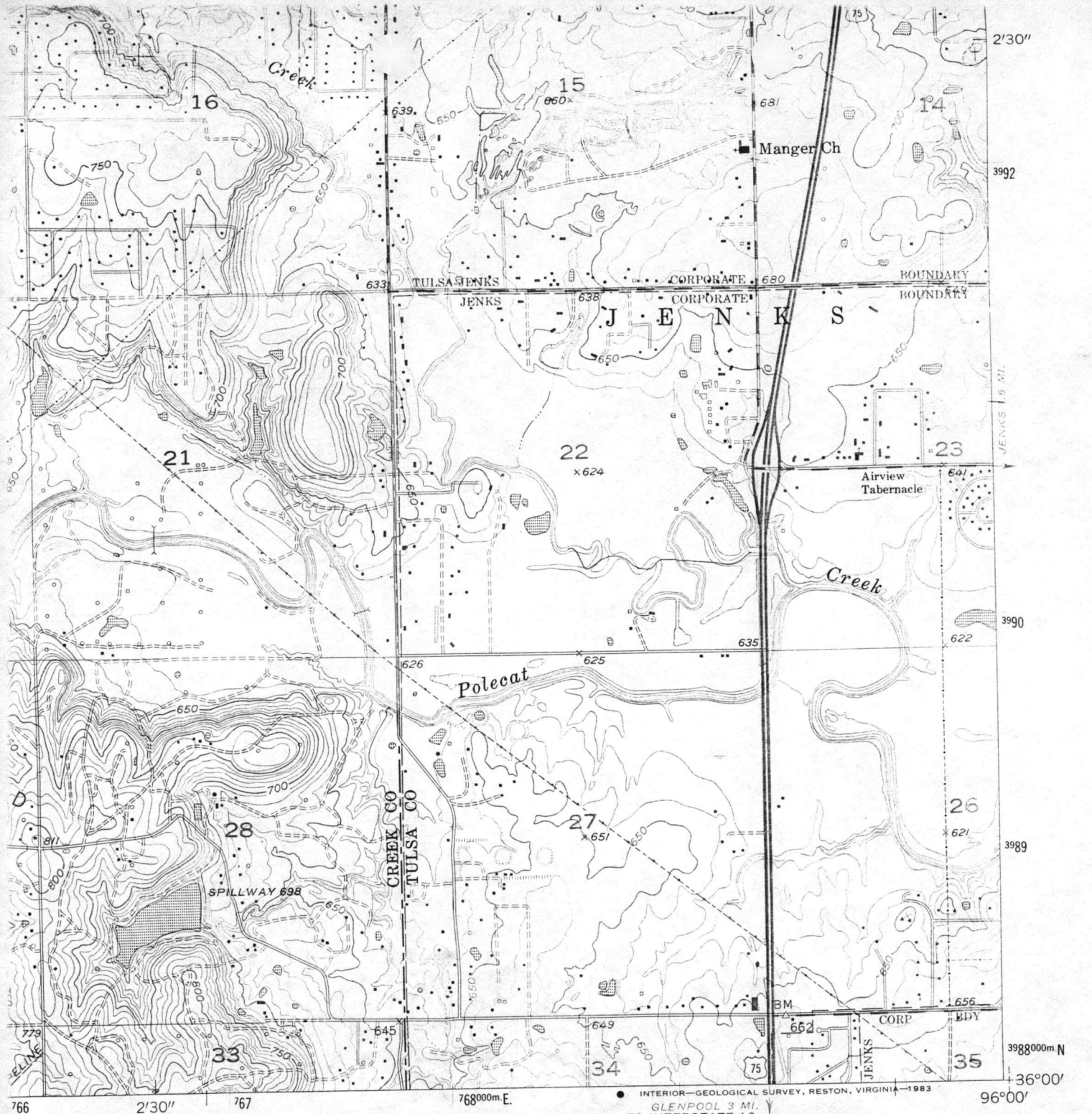
A Users Manual (HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

United States
Environmental Protection
Agency

1984

REFERENCE 9



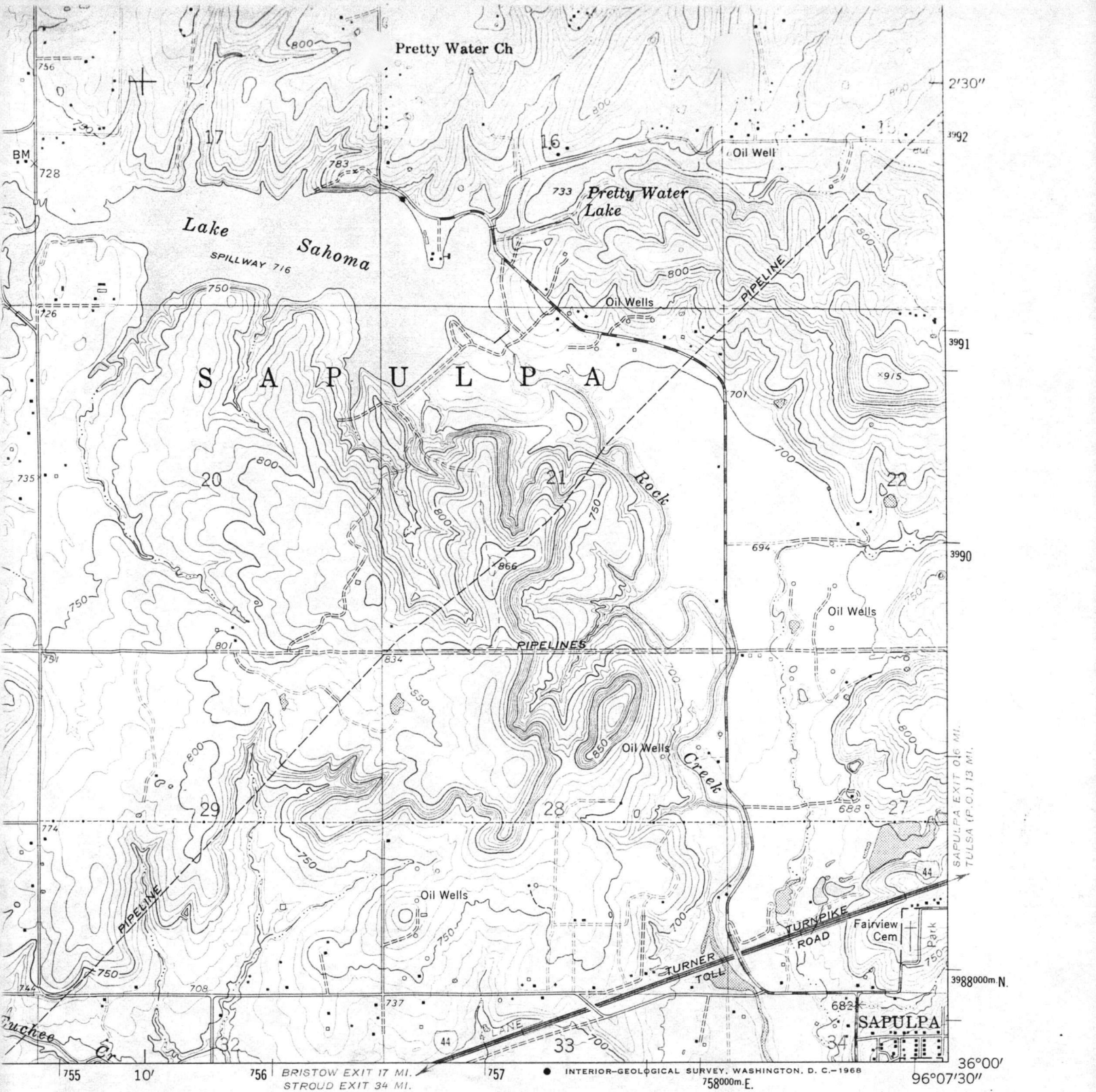
- ROAD CLASSIFICATION
- | | | | |
|------------------|-------|-----------------|-------|
| Heavy-duty | ————— | Light-duty | ————— |
| Medium-duty | ————— | Unimproved dirt | ————— |
| Interstate Route | ⬢ | U. S. Route | ⬢ |
| | | State Route | ⬢ |

SAPULPA NORTH, OKLA.
N 3600—W 9600/7.5

1956
PHOTOREVISED 1983
DMA 6756 II SE—SERIES V883

VIRGINIA 22092
QUEST

(BIXBY)
6855 IV NW



TON, D. C. 20242
73069
QUEST

E-47

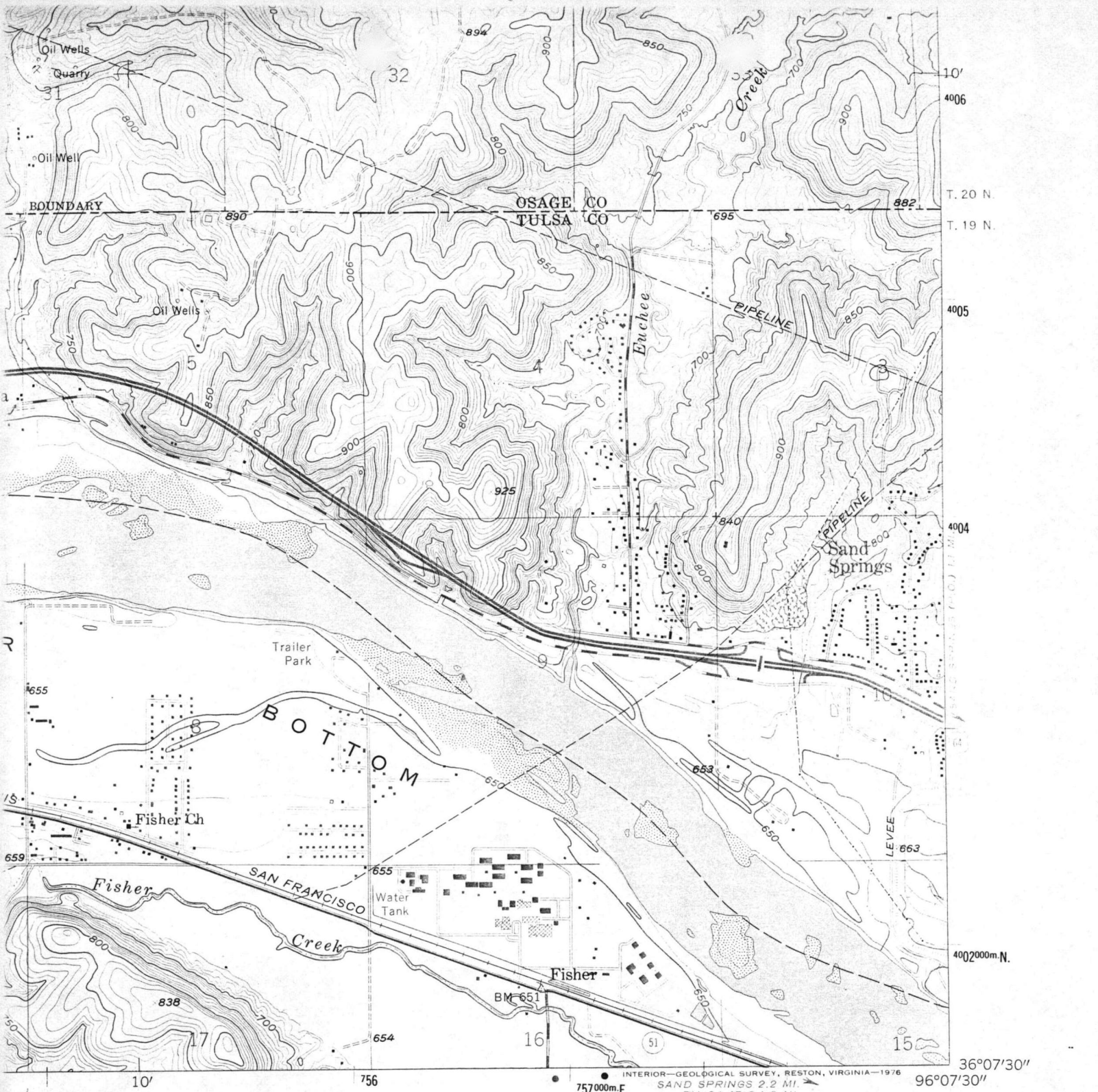
LAKE SAHOMA, OKLA.

N 3600—W9607.5/7.5

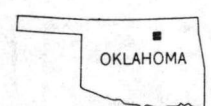
1959

PHOTOREVISED 1967

AMS 6756 II SW—SERIES V883



1 MILE
10 FEET
ER



ROAD CLASSIFICATION

Heavy-duty	Light-duty
Medium-duty	Unimproved dirt
U.S. Route	State Route

WEKIWA, OKLA.
N 36°07.5' - W 96°07.5/7.5

1958

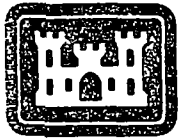
PHOTOREVISED 1967 AND 1973

AMS 6756 II NW-SERIES V883

INIA 22092
ST

E-41

REFERENCE 10



DEPARTMENT OF THE ARMY
TULSA DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 61
TULSA, OKLAHOMA 74121-0061

DATE: 6/9/89

TO: Scott Thompson
Solid Waste Division
State Health Department
P.O. Box 53551
Oklahoma City, OK 73152

RECEIVED

JUN 13 1989

Waste Management Service

SUBJECT: Average Annual Flows below Keystone Dam

Contract No.

We are sending you ☒ ATTACHED ☐ UNDER SEPARATE COVER BY
the following information:

Drawings	<input type="checkbox"/> Correspondence	<input type="checkbox"/> Maps
<input type="checkbox"/> Originals	<input type="checkbox"/> Design Criteria	<input type="checkbox"/> Photographs
<input type="checkbox"/> Prints	<input type="checkbox"/> Estimate	<input type="checkbox"/> Shop Drawings
	<input type="checkbox"/> Scope of Work	<input type="checkbox"/> Change Order
Specifications	<input type="checkbox"/> Contract Documents	<input type="checkbox"/> Samples
<input type="checkbox"/> Original	<input type="checkbox"/> Foundation Report	
<input type="checkbox"/> Guide Specifications	<input type="checkbox"/> Design Analysis	

Review Comments (unofficial) ☒ Other Flow values from annual report
☐ Concept or Early Preliminary
☐ Final

For ☐ YOUR USE ☐ INFORMATION ☒ AS REQUESTED

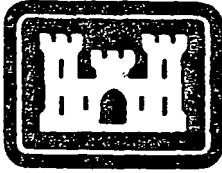
Remarks

If the attachments are not as listed, please notify us at once.

FROM: David Fisher

H&H Branch, Reservoir Control Section

DO NOT USE THIS FORM FOR APPROVALS, CONCURRENCES, OR REQUESTS FOR ACTION.



**US Army Corps
of Engineers**
Southwestern Division
Reservoir Control Center

Annual Report 1987

January 1988

RECEIVED

JUN 13 1989

Waste Management Service

THE PACESETTER DIVISION

GREAT SALT PLAINS LAKE

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	21.23	15.25	9.13	9.23	13.13	21.07	31.69	54.65	45.26	22.56	21.24	19.10	283.5
FY 1987	135.98	49.30	24.20	30.62	77.91	173.54	53.98	143.68	62.82	65.24	21.28	52.56	891.1
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1987	26.43	23.23	9.86	9.13	14.24	35.03	34.31	58.15	58.52	24.53	5.90	12.05	311.4
FY 1987	146.54	51.70	24.78	25.45	64.79	157.73	84.44	104.10	95.58	61.99	10.62	31.69	859.4
RAINFALL(INCHES)													
AVG 1930 THRU 1980	1.87	1.19	0.84	0.69	0.91	1.52	2.35	3.71	3.57	2.54	2.89	2.39	24.47
FY 1987	1.21	1.10	0.06	0.46	1.22	3.07	0.47	4.85	3.48	1.05	2.70	2.77	22.44
DEVIATION	-0.66	-0.09	-0.78	-0.23	0.31	1.55	-1.88	1.14	-0.09	-1.49	-0.19	0.38	-2.03
POOL ELEVATION													
END OF MONTH	1125.60	1125.57	1125.47	1125.85	1126.98	1128.36	1125.60	1128.91	1125.62	1125.19	1125.78	1127.47	
MAXIMUM	1129.43	1126.82	1125.70	1125.85	1127.29	1129.93	1128.36	1129.27	1128.91	1126.96	1125.98	1127.47	
MINIMUM	1125.60	1125.47	1125.45	1125.40	1125.48	1125.62	1125.60	1125.47	1125.49	1125.19	1124.83	1125.26	

POOL CONTENT-EOM
(1000AC.FT)

36.99	36.71	35.78	39.31	50.97	67.63	36.99	74.80	37.17	33.18	38.66	56.71	
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ARKANSAS RIVER BASIN

KEYSTONE LAKE

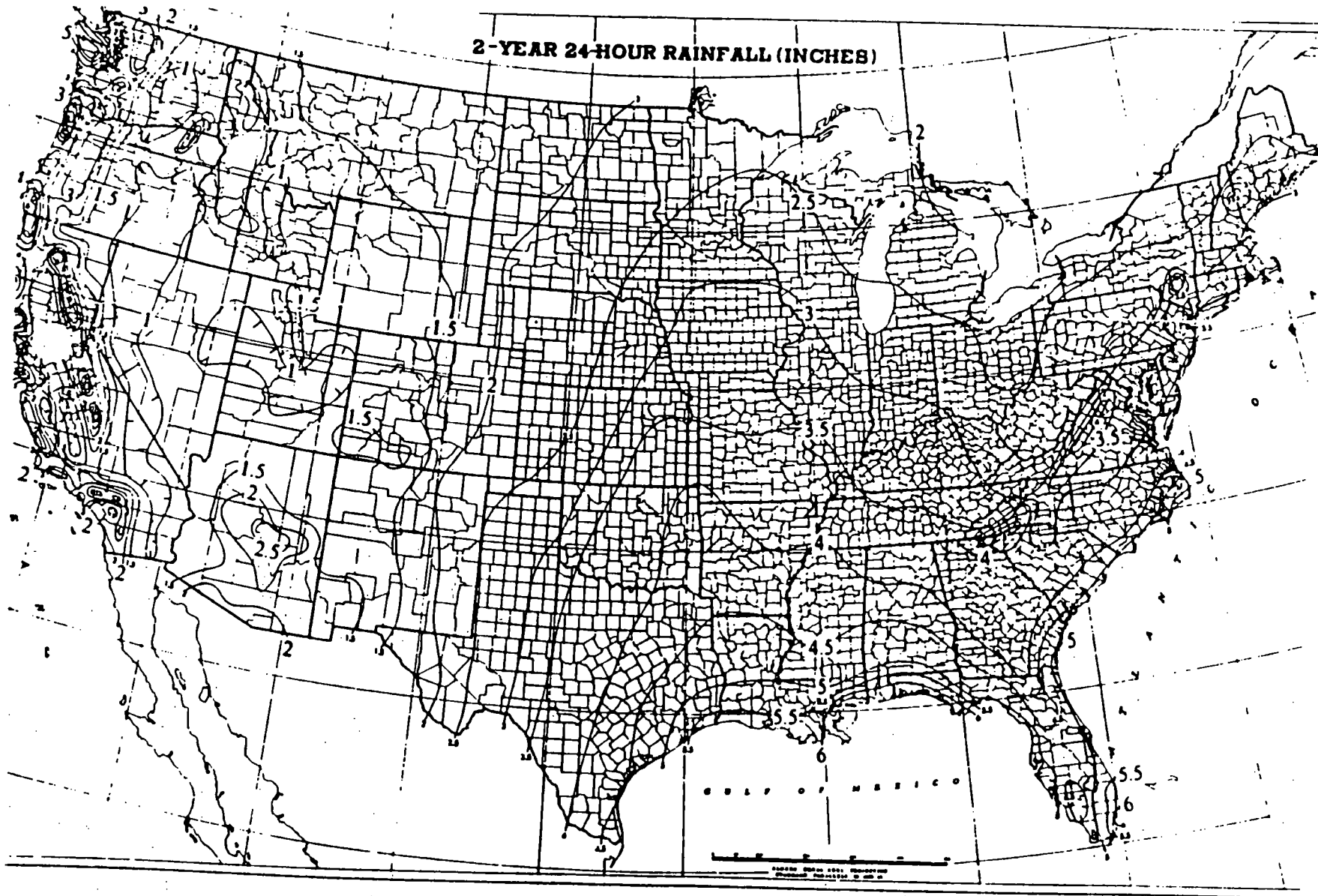
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	394.68	288.16	175.45	167.90	194.73	336.81	536.34	752.88	738.79	466.47	283.50	328.51	4664.2
FY 1987	4400.73	1111.14	511.93	522.45	1027.64	2308.26	979.04	1406.48	1181.55	1086.15	317.55	362.38	15215.3
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1987	560.39	323.62	212.92	177.74	210.63	547.96	600.02	690.84	756.97	487.31	190.94	198.59	4957.9
FY 1987	4398.57	1235.61	617.68	502.98	894.93	2392.93	1079.74	795.86	1649.35	1151.75	322.12	376.23	15417.8
RAINFALL(INCHES)													
AVG 1930 THRU 1980	2.38	1.72	1.18	0.97	1.15	1.87	2.87	4.41	4.16	3.14	2.99	3.40	30.24
FY 1987	2.97	2.54	0.27	0.71	1.47	2.23	0.41	5.87	3.80	1.96	2.83	4.66	29.72
DEVIATION	0.59	0.82	-0.91	-0.26	0.32	0.36	-2.46	1.46	-0.36	-1.18	-0.16	1.26	-0.52
POOL ELEVATION													
END OF MONTH	732.55	728.51	724.71	725.97	730.53	727.27	722.92	741.71	727.48	724.38	723.60	722.67	
MAXIMUM	755.82	736.75	728.82	725.97	730.53	740.57	727.27	741.71	742.02	731.17	724.45	723.83	
MINIMUM	732.55	726.12	724.71	722.91	723.82	727.27	722.92	721.75	727.48	724.38	722.93	721.57	
POOL CONTENT-EOM (1000AC.FT)	825.55	702.07	599.43	631.88	762.04	667.07	555.75	1156.11	672.92	591.18	572.05	549.96	

Flows past Keystone Dam Site
prior to construction of Keystone Dam

6390 cfs
per day6000 cfs
7

REFERENCE 12

2-YEAR 24-HOUR RAINFALL (INCHES)



REFERENCE 13

MEMORANDUM

DATE: June 8, 1989

TO: File

FROM: Scott A. Thompson *SAT*
Environmental Specialist
Solid Waste Division

SUBJECT: Surface Water use of the Arkansas River downstream of the Sand Springs and Tulsa, Oklahoma areas.

On June 7, 1989 I went up to the Oklahoma Water Resources Board Streamwater Division office and looked at their maps of water intakes on the Arkansas River. There are only 2 intakes within 15 downstream miles of the Boyles Galvanizing, Advance Chemical or Fibercast sites. Both intakes are industrial and the permits are held by Public Service Company of Oklahoma, a utility company.

REFERENCE 14

RECORD OF COMMUNICATION	X Phone Call - Discussion - Field Trip - Other Specify	
	(Record of item checked above)	
TO: David Bouchard City of Sand Springs Industrial Pretreatment Program	FROM: Scott Thompson OSDH <i>SAT</i>	DATE: 7/3/89
		TIME: 1:30 pm
SUBJECT: Fibercast Inc.		
SUMMARY OF COMMUNICATION I called Mr. Bouchard and asked what Fibercast's permit number was. I also inquired whether they had any compliance problem. Mr. Bouchard stated that their permit # is 736201. He indicated that occasionally Fibercast had relatively high boron and pH levels at the end of their process but that they were in compliance at the city's sample points. He did not know of any significant problems involving Fibercast.		
CONCLUSIONS, ACTION TAKEN OR REQUIRED		
INFORMATION COPIES TO: File		

REFERENCE 15



Multi-Site

OKLAHOMA GEOLOGICAL SURVEY

Charles J. Mankin, *Director*

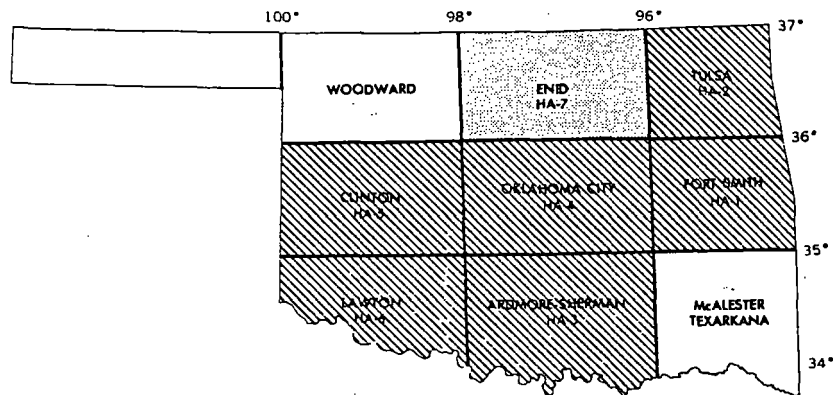
HYDROLOGIC ATLAS 7

RECONNAISSANCE OF THE WATER RESOURCES OF THE ENID QUADRANGLE NORTH-CENTRAL OKLAHOMA

By

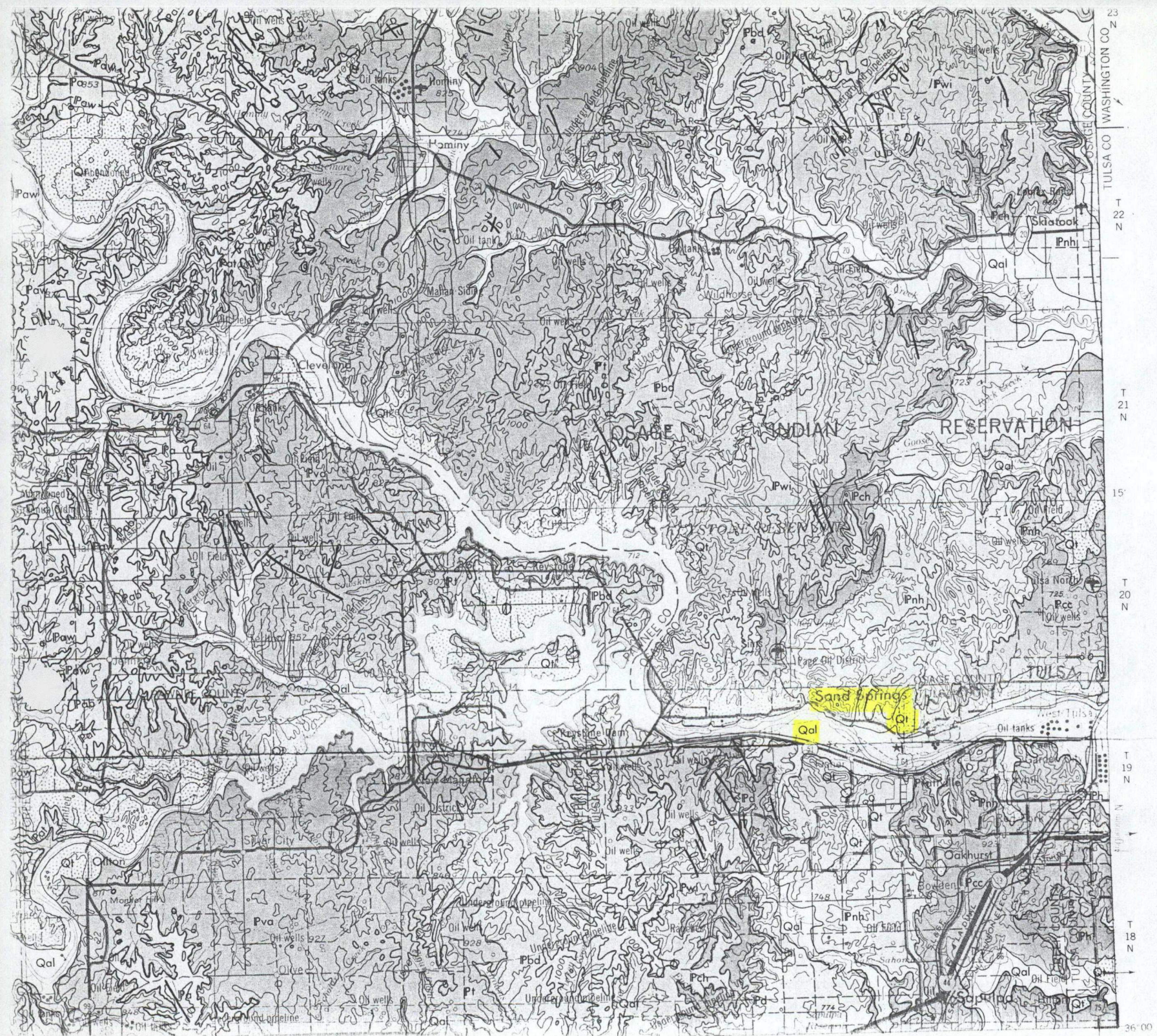
ROY H. BINGHAM AND DEROY L. BERGMAN
U.S. Geological Survey

Prepared in cooperation with
UNITED STATES GEOLOGICAL SURVEY



Scale 1:250,000

The University of Oklahoma
Norman
1980



Sumner Group

Gearyan

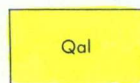
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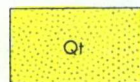
EXPLANATION



ALLUVIUM

Sand, silt, clay, and locally gravel. Maximum thickness ranges from 30 to 80 feet (9 to 24 m) along major streams and from 0 to 60 feet (0 to 18 m) along minor streams.

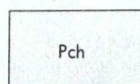
UNCONFORMITY



TERRACE DEPOSITS

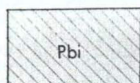
Sand, silt, clay, and gravel. Maximum thickness, about 75 feet (23 m) along major streams.

UNCONFORMITY



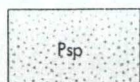
CEDAR HILLS SANDSTONE

Mainly orange-brown, fine-grained quartzose sandstone. Thickness, about 180 feet (55 m).



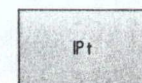
BISON FORMATION

Mainly red-brown shale and greenish-gray and orange-brown calcitic siltstone with minor sandstone in Garfield County. Thickness, about 120 feet (35 m).



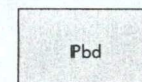
SALT PLAINS FORMATION

Mainly red-brown shale with several thin beds of orange-brown



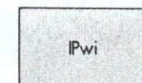
TALLANT FORMATION

Alternating layers of shale and fine- to medium-grained sandstone. Thickness ranges from 75 to 250 feet (23 to 75 m).



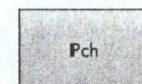
BARNSDALL FORMATION

Formation is mainly fine- to medium-grained sandstone, overlain by shale. At top is a thick shale, with *Okesa Sandstone Member* in middle and *Birch Creek Limestone* (= *South Bend Limestone*) at base. Birch Creek extends southward from Kansas border to T. 23 N., where limestone grades into overlying Okesa Sandstone. South of T. 23 N., Okesa grades downward into underlying *Torpedo Sandstone* and underlying Wann Formation. Total thickness ranges from 45 feet to 200 feet (14 to 60 m).



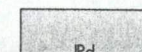
WANN FORMATION AND IOLA LIMESTONE

Wann Formation consists of shale and fine- to medium-grained sandstone with many thin layers of fossiliferous limestone. Thickness ranges from 50 to 400 feet (15 to 122 m). *Iola Limestone* is mainly limestone, calcareous sandstone, and shale and underlies Wann. Thickness ranges from 4 to 100 feet (1 to 30 m).



CHANUTE FORMATION

Mainly fine-grained micaceous sandstone and coarse-grained, crossbedded sandstone separated by shale. Locally Chanute contains thin coal seams. Thickness ranges from about 10 to 150 feet (3 to 45 m).



VANIAN

Missourian

El Reno Group

roup

REFERENCE 16

Fibercast Company
P.O. Box 968
Sand Springs, Oklahoma 74063
(918) 245-6651 Telex 49-7403



Fibercast®

RECEIVED

MAY 22 1989

Waste Management Service

Attn: Mr. Scott Thompson

Oklahoma State Department of Health
Waste Management Service
1000 N.E. 10th Street
P. O. Box 53551
Oklahoma City, Oklahoma 73152

May 17, 1989

Dear Mr. Thompson:

I appreciate the time you and Mr. Hrebec spent with us Tuesday during our facility inspection. Let me say again that we will cooperate in whatever way is necessary to help you in the matter of the Sand Springs Petrochemical Complex Site.

During the preliminary interview you requested information concerning our use of solvents. The table below shows the three types of solvents used in our operations and the 1988 average monthly usage of each.

Type of Solvent	Gallons Purchased per Month	Gallons Recycled per Month
ACETONE	1123	304
ADSOL 75	149	125
VM&P NAPHTHA	331	42

I have also enclosed a copy of the Material Safety Data Sheet (MSDS) for each of the solvents listed above.

Please contact us if additional information is needed.

Sincerely,

Larry W. Moore, P.E.
Plant Engineer

LWM:sp

Enclosures

cc: R. L. Breshears
R. A. Kinman



ADVAN CHEMICAL
206 E. Morrow Road
Sand Springs, Ok. 74063

APR 4 1989

MATERIAL SAFETY DATA SHEET
Chemtrec 24 Hr: 800-424-
Advance: 918-245-

PRODUCT IDENTIFICATION

PRODUCT NAME: Adsol 75
CHEMICAL FAMILY: Solvent Blend
DOT HAZARD CLASS: Combustible Liquid
DOT ID NUMBER:

RECEIVED

MAY 22 1989

Waste Management Service

II HAZARDOUS INGREDIENTS

OCCUPATIONAL EXPOSURE LIMITS

COMPONENT	OSHA		ACGIH		OTHER
	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL	
CHLORINATED SOLVENT	500 ppm		100 ppm		
KETONE	1000 ppm		750 ppm		
ALIPHATIC HYDROCARBON			100 ppm		

III PHYSICAL DATA

BOILING POINT: 103°F @ 760 mm Hg
VAPOR PRESSURE: 420 mm Hg @ 77°F
% VOLATILE BY VOLUME: 100%
SPECIFIC GRAVITY: 1.1634
APPEARANCE AND ODOR: Clear, colorless liquid with solvent odor.

EVAPORATION RATE: 1.7
VAPOR DENSITY: 2.82
SOLUBILITY IN H₂O: Slight
WEIGHT PER GALLON: 9.7#/Gallon

IV FIRE AND EXPLOSION DATA

FLASH POINT: -15°F TCC
FLAMMABLE LIMITS (% BY VOLUME IN AIR)
UPPER: .09 LOWER: 14%
EXTINGUISHING MEDIA: Water fog, carbon dioxide, or dry chemical.
SPECIAL FIRE FIGHTING PROCEDURES: Pressure-demand, self-contained respiratory protection should be provided for fighters in building or confined areas where this product is stored. Storage containers exposed to fire should be kept cool with a water spray to prevent pressure build-up.
UNUSUAL FIRE AND EXPLOSION HAZARD: At high temperatures this product gives off hydrochloric acid as gas and other toxic and irritating vapors such as phosgene. If containers are exposed to excessive heat, over-pressurization of the containers can result.

V REACTIVITY DATA

STABILITY: Stable
HAZARDOUS POLYMERIZATION: Not known to polymerize.
CONDITIONS AND MATERIALS TO AVOID: Heat, sparks, flame, strong oxidizers, and alkali metal. Avoid vapor accumulation.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, unidentified organic compounds, hydrogen chloride vapors, and other toxic and irritating vapors such as phosgene are given off during combustion or high temperatures.

VI HEALTH AND HAZARD DATA

TOXICITY INFORMATION

		CHLORINATED SOLVENTS	KETONE	ALIPHATIC HYDROCARBON
ACUTE ORAL:	LD50(rat)	2000-4000 mg/kg	9.75 g/kg	+5 g/kg
ACUTE DERMAL:	LD50(rabbit)	2700 mg/kg	20.0 g/kg	+3 g/kg
ACUTE INHALATION:	LC50(rat)	24445 ppm	16000 ppm/4 hrs	3400 ppm/4 hrs

EFFECTS OF ACUTE AND CHRONICEXPOSURE

EYE CONTACT: Liquid, or vapor, are irritating to the eye causing pain, lacrimation, and general inflammation.

SKIN CONTACT: Mildly irritating to skin. Skin contact may produce a burning sensation. Prolonged or repeated contact may cause skin to become reddened, rough and dry due to removal of natural oils, and may result in dermatitis.

INHALATION: Moderate irritant of the upper respiratory track. Concentration insufficient to produce unconsciousness may produce gastrointestinal upset, and may progress to severe kidney and liver damage.

INGESTION: May cause irritation of the gastrointestinal tract with vomiting. If vomiting results in aspiration chemical pneumonia could follow. Absorption through the gastrointestinal tract may produce symptoms of CNS, depression, ranging from lightheadedness to unconsciousness.

AGGRAVATED MEDICAL CONDITIONS: Persons with angina or heart disease should not be exposed to this product. Preexisting eye, skin, or respiratory conditions could be aggravated by exposure to this product.

EMERGENCY AND FIRST AID PROCEDURES

EYES: Flush eyes with large amounts of water for at least 15 minutes, holding eyelids apart. Get medical attention.

SKIN: Wash exposed area with plenty of soap and water. A soothing ointment may be applied to irritated skin after thorough cleansing. Remove contaminated clothing and footwear and wash clothing before reuse. Get medical attention.

INHALATION: Remove victim to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Get medical attention immediately.

INGESTION: NEVER give anything by mouth to an unconscious person. Have conscious patient drink several glasses of water, then induce vomiting by having patient tickle back of throat with finger. Keep air passage clear. Get medical attention immediately.

VII**EMPLOYEE PROTECTION**

VENTILATION: Where engineering controls are not feasible use adequate local exhaust ventilation. Local exhaust ventilation should be used wherever mist, spray or vapor may be generated.

EYE PROTECTION: Face shield and goggles or chemical goggles should be worn.

SKIN PROTECTION: Impervious gloves should be worn. Gloves contaminated with the product should not be worn. Polyfluorinated polyethylene has been suggested. Standard work clothing to minimize skin contact.

RESPIRATORY PROTECTION: Respiration protection is not required under normal use. However, use a NIOSH/MSHA approved respirator where vapor, mist, or spray may be generated. Use self-contained breathing apparatus for tank and confined space entry.

VIII**ENVIRONMENTAL PROTECTION**

SPILL OR LEAK PROCEDURES: Wearing appropriate respirator and protective clothing, stop leak if safe to do so. Dike and contain spill. Remove spill to non-leaking containers for proper disposal. Flush area with water to remove residue. Properly dispose of rinsate and contaminated dirt or soil.

WASTE DISPOSAL: Place in a disposal facility approved under RCRA regulations for hazardous waste. This product is designated as a hazardous substance under the Clean Water Act. KEEP OUT OF SURFACE WATERS OR SEWERS ENTERING OR LEADING TO SURFACE WATERS.

IX**SPECIAL PRECAUTIONS**

HANDLING AND STORAGE: Store tightly sealed containers in a cool, dry, well ventilated area. Do not remove or destroy labeling.

OTHER PRECAUTIONS: This product for Industrial Use only.

"EMPTY" CONTAINER WARNING: Empty containers retain residue (liquid or vapor) and can be dangerous.

The information contained herein is based on the data available to us and is believed to be correct. However, Advance makes no warranty, expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Advance assumes no responsibility for injury from the use of the product described herein.



MATERIAL SAFETY DATA SHEET

003082

VM&P NAPHTHA LONG RANGE 66

PAGE: 1

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

PRODUCT NAME: VM&P NAPHTHA LONG RANGE 66
CAS NUMBER: 64742 89 8

LTV ENERGY PRODUCTS
FIBERCAST DIVISION
BOX 968
SAND SPRINGS OK 74063

05 50 050 3219590-
DATA SHEET NO: 0026935-001
LATEST REVISION DATE: 03/86-86063
PRODUCT: 2683000
INVOICE: 950785
INVOICE DATE: 04/07/86
TO: LTV ENERGY PRODUCTS
FIBERCAST DIVISION
25 50 MAIN
SAND SPRINGS OK 74063

ATTN: PLANT MGR./SAFETY DIR.

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: ALIPHATIC HYDROCARBON

DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID (173.115)

RECEIVED

MAY 22 1989

SECTION II-COMPONENTS

INGREDIENT	% (BY WT)	PEL	TLV	Waste Management Service	NOTE
ALIPHATIC PETROLEUM DISTILLATES	100	500	300 PPM		(1)

(1): NIOSH RECOMMENDS A LIMIT OF 350 MG/CUM - 8 HOUR TIME WEIGHTED AVERAGE, 1800 MG/CUM AS DETERMINED BY A 15 MINUTE SAMPLE.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
BOILING POINT	FOR PRODUCT	(190.00 DEG F 87.77 DEG C) 9 760.00 MMHG
VAPOR PRESSURE	FOR PRODUCT	(15.00 MMHG 9 100.00 DEG F 37.77 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	3.8
SPECIFIC GRAVITY		1.730
PERCENT VOLATILES		100.00%
EVAPORATION RATE	(ETHER = 1)	9.20

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT (25.00 DEG F
-3.88 DEG C)

EXPLOSIVE LIMIT (PRODUCT) LOWER - .9%

EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS: CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.

FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE WHEN FIGHTING FIRES.

SPECIAL FIRE & EXPLOSION HAZARDS: VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.

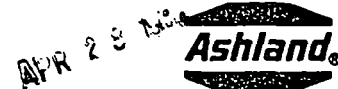
NFPA CODES: HEALTH- 1 FLAMMABILITY- 3 REACTIVITY- 0

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL 500 PPM
THRESHOLD LIMIT VALUE 300 PPM

EFFECTS OF ACUTE OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS, AND EVEN ASPHYXIA.

**MATERIAL SAFETY
DATA SHEET**

003082

VM&P NAPHTHA LONG RANGE 66

PAGE: 2

SECTION V-HEALTH HAZARD DATA (CONTINUED)

SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDRY CONTAMINATED CLOTHING BEFORE RE-USE.

IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.

IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION

SKIN CONTACT

SECTION VI-REACTIVITY DATA
-----**HAZARDOUS POLYMERIZATION: CANNOT OCCUR****STABILITY: STABLE****INCOMPATIBILITY: AVOID CONTACT WITH: , STRONG OXIDIZING AGENTS.**-----
SECTION VII-SPILL OR LEAK PROCEDURES
-----**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:**

SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER, ABSORBENT MATERIAL AND TRANSFER TO HOOD.

LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND SHOVELED INTO CONTAINERS. PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURRED.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF TLV OF THE PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH/MSHA JOINTLY APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS UNDER SPECIFIED CONDITIONS. (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS: , NITRILE RUBBER, NEOPRENE

EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

APR 28 1988

Ashland

MATERIAL SAFETY
DATA SHEET

24-HOUR EMERGENCY TELEPHONE (606) 324-1133

003081

ACETONE

PAGE: 1

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

PRODUCT NAME: ACETONE
CAS NUMBER:

67 64 1

LTV ENERGY PRODUCTS
FIBERCAST DIVISION
BOX 968
SAND SPRINGS OK 74063DS 50 050 J219590-
DATA SHEET NO: 0004335-C04
LATEST REVISION DATE: 03/24-86063
PRODUCT: 3010000
INVOICE: 950785
INVOICE DATE: 04/07/86
TO: LTV ENERGY PRODUCTS
FIBERCAST DIVISION
25 SO MAIN
SAND SPRINGS OK 74063

ATTN: PLANT MGR./SAFETY DIR.

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: KETONE

DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID (173.115)

SECTION II-COMPONENTS

INGREDIENT	% (BY WT)	PEL	TLV	NOTE
ACETONE	>95	1000	750 PPM	

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
BOILING POINT	FOR PRODUCT	(133.00 DEG F 9 50.11 DEG C) 760.00 MMHG
VAPOR PRESSURE	FOR PRODUCT	(186.00 MMHG 9 68.00 DEG F) (20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	2.0
SPECIFIC GRAVITY		.785 - .788 (77.00 DEG F) (25.00 DEG C)

PERCENT VOLATILES: SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE, FLO-100, OR OTHER APPROPRIATE MATERIAL AND TRANSFER TO WASTE.
EVAPORATION RATE: (N-BUTYL ACETATE = 1) 6.00

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT (TCC) (-4.00 DEG F
-20.00 DEG C)

EXPLOSIVE LIMIT (PRODUCT) LOWER - 2.6%

EXTINGUISHING MEDIA: ALCOHOL FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS: CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.

FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE WHEN FIGHTING FIRES.

SPECIAL FIRE & EXPLOSION HAZARDS: MATERIAL IS HIGHLY VOLATILE AND READILY GIVES OFF VAPORS WHICH MAY TRAVEL ALONG THE GROUND OR BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.

NI/PA CODES: HEALTH- 1 FLAMMABILITY- 3 REACTIVITY- 0

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	1000	PPM
THRESHOLD LIMIT VALUE	750	PPM

SEE SECTION II

EFFECTS OF ACUTE OVEREXPOSURE: FOR PRODUCT

EYES - CAUSES IRRITATION, REDNESS, TEARING.
SKIN - CAN CAUSE SLIGHT IRRITATION.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS, AND EVEN ASPHYXIATION.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA.

APR 28 1983

MATERIAL SAFETY
DATA SHEET

24-HOUR EMERGENCY TELEPHONE (606) 324-1133

003081

ACETONE

PAGE: 2

SECTION V-HEALTH HAZARD DATA (CONTINUED)

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDRY CONTAMINATED CLOTHING BEFORE RE-USE.

IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.

IF SWALLOWED: IMMEDIATELY DRINK TWO GLASSES OF WATER AND INDUCE VOMITING BY EITHER GIVING IPECAC SYRUP OR BY PLACING FINGER AT BACK OF THROAT. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION IMMEDIATELY.

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION

SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE: FOR PRODUCT

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LABORATORY ANIMALS: KIDNEY DAMAGE, EYE DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE

INCOMPATIBILITY: AVOID CONTACT WITH: STRONG OXIDIZING AGENTS, STRONG ALKALIES, STRONG MINERAL ACIDS.

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.

LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND SHOVELED INTO CONTAINERS.

WASTE DISPOSAL METHOD:

SMALL SPILL: ALLOW VOLATILE PORTION TO EVAPORATE IN HOOD. ALLOW SUFFICIENT TIME FOR VAPORS TO COMPLETELY CLEAR HOOD DUCT WORK. DISPOSE OF REMAINING MATERIAL IN ACCORDANCE WITH APPLICABLE REGULATIONS.

LARGE SPILL: DESTROY BY LIQUID INCINERATION. CONTAMINATED ABSORBENT MAY BE DEPOSITED IN A LANDFILL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF TLV OF THE PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH/MSHA JOINTLY APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS UNDER SPECIFIED CONDITIONS. (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS: NATURAL RUBBER, NEOPRENE, NITRILE RUBBER

EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.

APR 28 1963

**MATERIAL SAFETY
DATA SHEET**

24-HOUR EMERGENCY TELEPHONE (606) 324-1133

003081

ACETONE

PAGE: 3

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS (CONTINUED)

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

REFERENCE 17

**ENDANGERMENT ASSESSMENT
FOR THE OPERABLE UNIT OF
SAND SPRINGS PETROCHEMICAL COMPLEX
SUPERFUND SITE
TULSA COUNTY, OKLAHOMA**

MAY 7, 1987

RECEIVED
MAY 14 1987
Waste Management Services

Prepared for the

**OKLAHOMA STATE DEPARTMENT OF HEALTH
1000 NORTHEAST TENTH STREET
P.O. BOX 53551
OKLAHOMA CITY, OKLAHOMA 73152**

By:

**John Mathes & Associates, Inc.
210 West Sand Bank Road
P.O. Box 330
Columbia, Illinois 62236**



4. HAZARD ASSESSMENT FOR BALD EAGLE POPULATIONS

4.1 Status of bald eagles in Oklahoma

Oklahoma is an important wintering area for the bald eagle (Haliaeetus leucocephalus). It consistently ranks among the top 10 wintering sites for bald eagles in the nation (Oklahoma Department of Wildlife Conservation, 1986). According to a 1962 National Audubon Society study that assessed the size of bald eagle populations throughout the country, Oklahoma ranked fourth or fifth in the study (Lish, 1975).

4.2 General characteristics

The bald eagle, one of the largest migratory and predatory bird species in the world, is endemic to North America. It has a six and one-half- to seven-foot wingspan, is three- to three and one-half-feet tall, and weighs eight to 15 pounds. In 1978, it was listed by the U.S. Fish and Wildlife service as an endangered species in Oklahoma and throughout most of its range (U.S. Department of the Interior, 1978).

4.3 Taxonomy and migratory behavior

Two races of bald eagles have been identified in North America. Haliaeetus leucocephalus ssp. alascanus, the northern race, breeds in the northern United States and in southern Canada and migrates south in the winter. Haliaeetus leucocephalus ssp. leucocephalus, the southern race, breeds primarily in the lower

Mississippi valley to Baja California, the Gulf Coast, and Florida (American Ornithologist Union, 1957).

4.4 Wintering eagles in Oklahoma

Oklahoma is located within the wintering range of the northern race and the breeding and wintering range of the southern race. The bald eagles of the southern race, however, have not been reported as having successfully bred in Oklahoma in more than ten years (Oklahoma Department of Wildlife Conservation, 1986; Lish, 1975). Although it is the northern race of bald eagles that is believed to winter in Oklahoma, the birds in Oklahoma display taxonomic characteristics intermediate between the two races. Wintering bald eagles in Oklahoma have been tagged and recaptured (Lish, 1975) to determine their race, migratory characteristics, and nesting range. Oklahoma bald eagles nest primarily in the western Great Lake states (Wisconsin, Minnesota, Michigan, North Dakota, and South Dakota) and in south-central Canada (Ontario, Saskatchewan, and Manitoba) (Crowley and Garrison, 1978), confirming the belief that it is primarily the northern race that winters in Oklahoma. Bald eagles migrate south from their nesting areas and begin arriving in Oklahoma in late October to mid- to late-November (Oklahoma Department of Wildlife Conservation, 1986; Lish, 1975). They typically leave Oklahoma in March and return to the same nest sites year after year. Reports indicate, however, that bald eagles have arrived in Oklahoma as early as September and have left as late as May (Lish, 1975).

The large number of bald eagles present in Oklahoma during the winter is primarily due to a large number of open, unfrozen lakes, rivers, and reservoirs; plentiful supplies of food; and relatively mild temperatures (Oklahoma Department of Wildlife Conservation, 1986). Bald eagles have been reported to be present at many bodies of water in Oklahoma during the winter months (Lish, 1975; Lish and Lewis, 1975). Significant populations exist at many locations, including Keystone Reservoir located about seven miles upstream from the Sand Springs Petrochemical Complex (Figure 3). Bald eagle populations at Keystone Reservoir have increased from 13 in 1979 to 45 in 1983. Eagle counts at Keystone from 1983 to 1986, however, indicate a decline in the number of eagles at this site during this three-year period (Tulsa Audubon Society, 1986; Oklahoma Cooperative Wildlife Research Unit, 1986). The establishment of a second roost site near Leonard (about 30 miles downstream from the Sand Springs site) when Keystone Reservoir froze in the early 1980's is a possible explanation for this decline (Wire, 1987; Ewing, 1987). Evidence confirming the location of this roost site, however, is not available (Ewing, 1987).

4.5 Wintering and feeding behavior

During their nesting or breeding season, bald eagles exhibit extreme territorial behavior. In contrast to the territorial behavior exhibited during nesting season, bald eagles roost communally during their wintering season. Communal night roosts of bald eagles are characterized as large trees having large dead and exposed snags, void of small twigs and branches. Only trees having

these characteristics will accommodate the six- to seven-foot wingspan of the bald eagles. In Oklahoma, cottonwoods (Populus deltoides), sycamores (Platanus occidentalis), and oaks (Quercus spp.) are the preferred roost tree species (Lish, 1975; Lish and Lewis, 1975; Shalaway, 1983). In most cases, roost trees are located within about one kilometer of feeding areas; however, eagles have been known to feed as far as 24 to 32 kilometers from roost sites (Lish, 1975; Swisher, 1964). Generally, bald eagles will only feed great distances from their night roost sites when no suitable roost trees are available near feeding areas, or when human disturbance at night roost sites has forced bald eagles to relocate to more remote roost sites. Bald eagles are extremely sensitive to human disturbance, although out of necessity, they seem to be more tolerant of human disturbance at their feeding areas than at their roost sites (Lish, 1975; Shalaway, 1983). Bald eagles generally feed in the early morning hours. Although bald eagles feed primarily on fish, they are also opportunists that eat whatever is available (Cohn, 1985). As winter progresses and food becomes scarce, their diet often changes from fish to include dead or injured waterfowl or small mammals (Lish, 1975; Lish and Lewis, 1975).

4.6 Local bald eagle populations

Bald eagle populations in the area of the Sand Springs Petrochemical Complex roost primarily at the Tulsa Audubon Society Wildlife Preserve in Spring Creek Canyon to the northeast side of Keystone Reservoir. This population feeds mainly in two locations:

below Keystone Dam to approximately one kilometer (.6 mile) below the dam and at the confluence of the Salt Fork Branch of the Arkansas River and Keystone Lake, which is approximately 13 kilometers (8 miles) upstream from the Sand Springs Petrochemical Complex. These two sites are the preferred local feeding sites because of the abundance of food. Below the Keystone Dam, fish that have been pulled through the turbines and are injured or killed are released below the dam resulting in a readily available source of food for the bald eagles and for waterfowl (Lish, 1975; Lish and Lewis, 1975; Crowley and Garrison, 1978). Plentiful supplies of food are typically found at the confluence of rivers and resevoirs or lakes since this is the most productive area of a body of water. In addition, because both of these areas are relatively shallow and subject to occasional flooding, little urbanization has occurred. This has resulted in a moderate to low amount of disturbance to the bald eagle populations during feeding. Although disturbance in the area below the dam is increasing, the abundance of dead or injured fish in this area seems to compensate for increasing human population densities and disturbance (Lish and Lewis, 1975). Very little feeding occurs elsewhere along the Arkansas River. Lish (1975) reported that approximatley 91 percent of the feeding activity for the populations at Keystone occurred below the dam and approximately 9 percent occurred further downstream.

4.7 Diet of the local bald eagle population

The principal component of the diet of the bald eagle populations near the Sand Springs area is the fish species,

Dorosoma cepedianum, commonly known as gizzard shad. However, as the winter progresses and food becomes scarce, their diet often changes to include dead or injured waterfowl such as Canada geese (Branta canadensis) and mallard ducks (Anas platyrhynchos) (Lish and Lewis, 1975). No evidence exists that bald eagles in this area feed on small mammals, such as the eastern cottontail (Sylvilagus floridanus) (Andreasen, 1987).

Although bald eagles have not been observed feeding from the Arkansas River directly adjacent to the Sand Springs Petrochemical Complex (Andreasen, 1987), they have been observed in trees on the Sand Springs Petrochemical site and sitting on sand bars adjacent to the site. Also, Shalaway (1983) reported that bald eagles were seen perching and flying just north of the proposed Shenandoah Development, which is located southeast of the Sand Springs Petrochemical Complex and directly south of the Arkansas River (Figure 3-1). There is a potential bald eagle habitat along the banks of the Arkansas River approximately one-quarter mile from the Sand Springs Petrochemical Complex (Oklahoma Department of Wildlife Conservation, 1983).

The habitat use and feeding behavior of bald eagles described above are important to determine whether local bald eagle populations are at risk due to chemical contamination by the Sand Springs Petrochemical Complex. In addition to the information described in the toxicant profiles regarding the chemical, physical, and the toxicological properties of the contaminants and information on the levels of the contamination in the environment,

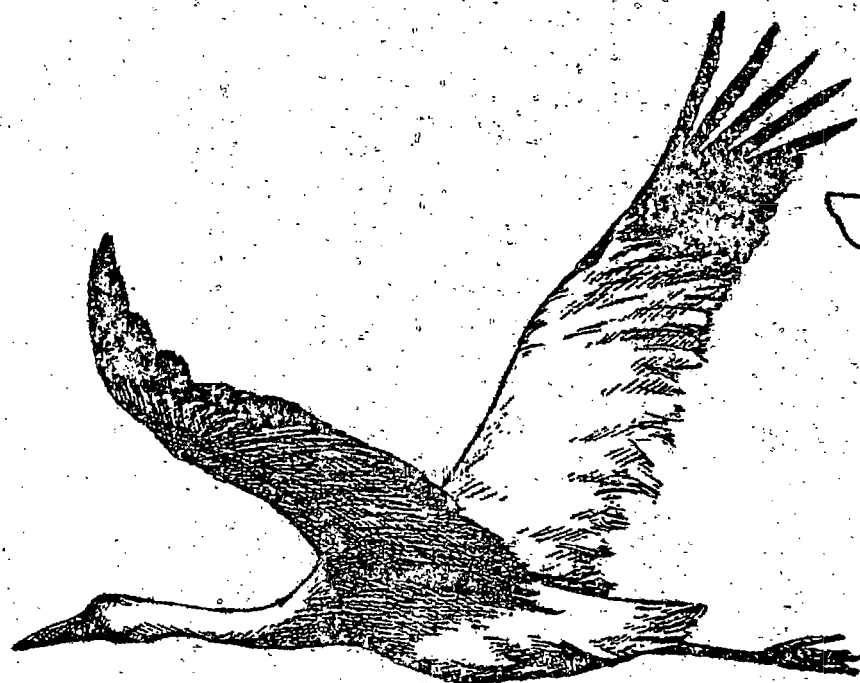
REFERENCE 18



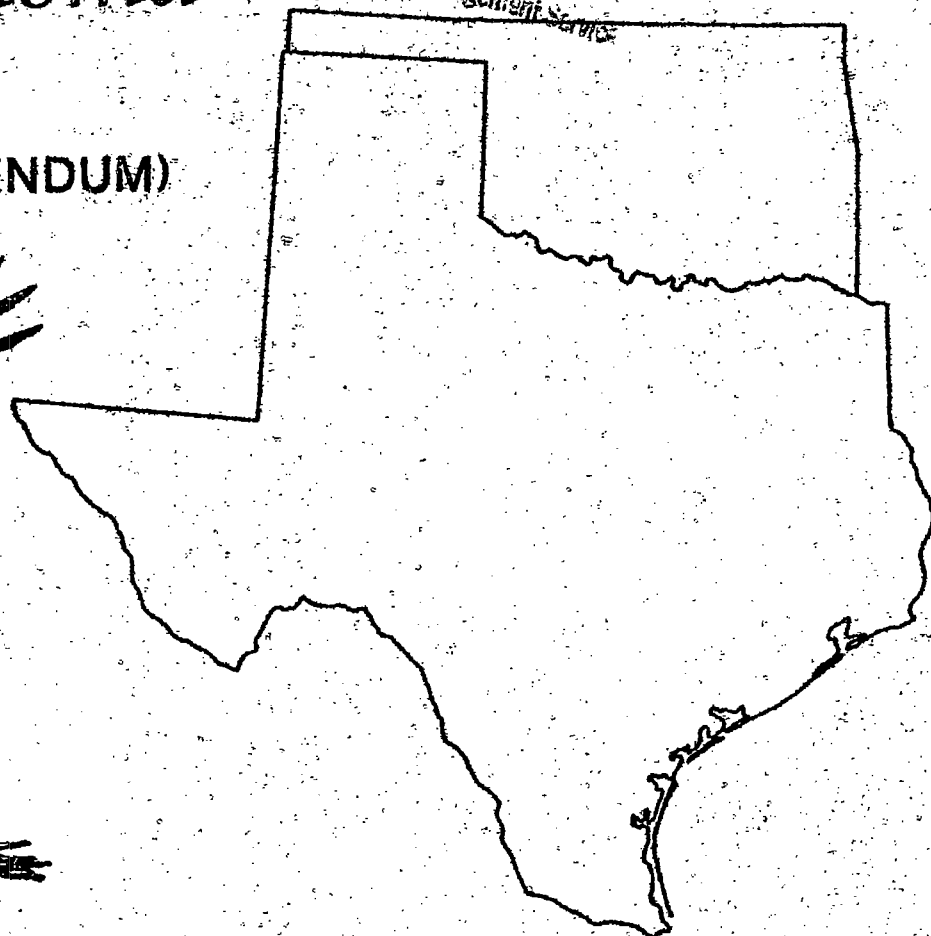
Endangered and Threatened Species of Texas and Oklahoma 1987

(WITH 1988 ADDENDUM)

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JUN 8 1989
Waste Management Service



Yonah 87



BALD EAGLE.....Haliaeetus leucocephalus

STATUS: Endangered (32 FR 4001, March 11, 1967; 43 FR 6233, February 14, 1978) without critical habitat

SPECIES DESCRIPTION: Large eagle with white head and tail in the adult; immatures are dark or mottled. Feet are bare of feathers. Wingspan is 6-7.5 feet.

HABITAT: Bald eagles require large trees or cliffs near water with abundant fish for nesting. They spend the winters along major rivers, reservoirs, or in areas where carrion is available. For nesting eagles, fish are the primary food source. Waterfowl, rabbits, and carrion are also important food items for transient and wintering eagles.

DISTRIBUTION: Found throughout the United States, Canada, and northern Mexico.

Historic: Occurred statewide in winter; few nesting records.

Present: Still may occur statewide in winter. Counties shown as present distribution are those that contain large wintering populations. Winter concentrations occur around large bodies of water from December through March. Three nests have been active in the last 10 years: one at Robert S. Kerr Reservoir in Haskell County, one on the McAllister Ammunition Depot in Pittsburg County, and one at Sequoyah NWR in Cherokee County.

REASONS FOR DECLINE: Degradation and loss of riparian habitat, pesticide-induced reproductive failure, and human disturbance (including shooting, poisoning and trapping).

OTHER INFORMATION: Recovery Plan approved in 1983; Recovery Team appointed. The bald eagle is endangered in all but 5 of the lower 48 States. In Washington, Oregon, Minnesota, Wisconsin, and Michigan, it is listed as threatened. Not listed in Alaska, Mexico, or Canada. Nesting populations are gradually increasing in most areas of the country.

REFERENCES: Lish 1975; Oklahoma Coop. Wild. Res. Unit 1980, 1981; USFWS 1983b; Busch (in press).

INTERIOR LEAST TERN (Interior population).....Sterna antillarum

- STATUS: Threatened (50 FR 21784; May 28, 1985) without critical habitat
- SPECIES DESCRIPTION: Least terns are small birds with a 20-inch (50 cm) wingspread. Sexes are alike, characterized in the breeding plumage by a black crown, white forehead, grayish back and dorsal wing surfaces, snowy white undersurfaces, orange legs, and a black-tipped yellow bill. Breeding colonies contain from about 5 to 75 nests.
- HABITAT: Important characteristics of its breeding habitat include: (1) the presence of bare or nearly bare ground on alluvial islands or sandbars for nesting, (2) the availability of food (primarily small fish), and (3) the existence of favorable water levels during the nesting season (so nests remain above water).
- DISTRIBUTION:
- Historic: Sand bars on the Colorado (in Texas), Red, Rio Grande, Arkansas, Missouri, Ohio, and Mississippi River systems; braided rivers of northwest Oklahoma and southwest Kansas; (salt) flats of northwest Oklahoma (Salt Plains National Wildlife Refuge); mud playa lakes in southeastern New Mexico (Bitter Lakes National Wildlife Refuge).
- Present: Terns presently occur as small remnant colonies within their historic distribution.
- REASONS FOR DECLINE: Many nesting areas have been permanently inundated or destroyed by reservoirs and channelization projects. Alteration of natural river or lake dynamics has caused unfavorable vegetational succession on many remaining islands, curtailing their use as nesting sites by terns. Recreational use of sandbars is a major threat to the tern's reproductive success. Release of reservoir water and annual spring floods often inundate nests.
- OTHER INFORMATION: Recovery plan drafted in 1986. The Service is working with the States of New Mexico, Texas, Oklahoma, and the Bureau of Reclamation to monitor tern populations. The Service is also working with The Nature Conservancy to protect tern habitat along the Arkansas River near Tulsa, Oklahoma, and with the U.S. Army Corps of Engineers to protect tern habitat at Optima Reservoir, northwestern Oklahoma.
- REFERENCES: Downing 1980, Grover and Knopf 1982, Faanes 1983, Hill 1985, Boyd 1986, USFWS 1986a.

REFERENCE 19

RECORD OF COMMUNICATION	<input checked="" type="checkbox"/> Phone Call - Discussion - Field Trip - Other Specify	
	(Record of item checked above)	
TO: Alan Ratzlaff U.S. Fish & Wildlife Service Tulsa, OK	FROM: Scott Thompson OSDH	DATE: 6/7/89
		TIME: 3:10 pm
SUBJECT: Least Tern project in Tulsa.		
SUMMARY OF COMMUNICATION I spoke with Mr. Ratzlaff to confirm the existence of a project concerning propagation of interior least terns in the Tulsa area. There is a nesting project along the Arkansas River.		
CONCLUSIONS, ACTION TAKEN OR REQUIRED		
INFORMATION COPIES TO: File		

REFERENCE 20

**SAND SPRINGS PETROCHEMICAL COMPLEX
SUPERFUND SITE
TULSA COUNTY, OKLAHOMA
MAIN SITE OPERABLE UNIT
REMEDIAL INVESTIGATION REPORT**

VOLUME 1 OF 2

MARCH 1988

RECEIVED
MAR 15 1988
Waste Management Services

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MAR 15 1988
Waste Management Services

Prepared for the

**OKLAHOMA STATE DEPARTMENT OF HEALTH
1000 NORTHEAST TENTH STREET
P.O. BOX 53551
OKLAHOMA CITY, OKLAHOMA 73152**

and the

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VI
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733**

Prepared by:

**Oklahoma State Department of Health
Division of Solid Waste
and
John Mathes & Associates, Inc.
210 West Sand Bank Road
P.O. Box 330
Columbia, Illinois 62236**

**The preparation of this report was financed through
grants from the U.S. Environmental Protection Agency
through the Oklahoma State Department of Health.**

**SAND SPRINGS PETROCHEMICAL COMPLEX
SUPERFUND SITE
TULSA COUNTY, OKLAHOMA
MAIN SITE OPERABLE UNIT
REMEDIAL INVESTIGATION REPORT**

VOLUME 2 OF 2

RECEIVED
MAR 18 1988
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REFERENCE 21

SAMPLE NUMBER 166883 SAMP

00000

DATE COLLECTED 05/16/89

DATE RECEIVED 05/18/89

DATE COMPLETED 06/29/89

STATION

DEPTH CODE

COLLECTED BY SAT

OKLAHOMA STATE DEPARTMENT OF HEALTH
STATE ENVIRONMENTAL LABORATORY SERVICE
REPORT OF ANALYSIS

COPY

WASTE MANAGEMENT SERVICE
OSDH ROOM 803
OKLAHOMA CITY

OK 73152

GENERAL PROJECTS

CONCENTRATION IN SAMPLE

PARAMETER	VALUE	UNIT	PARAMETER	VALUE	UNIT
PHENOL IN WATER	<	10.000 UG/L	2-CHLOROPHENOL WATER	<	10.000 UG/L
2,4-DIMETHYLPHENOL W	<	10.000 UG/L	2-NITROPHENOL WATER	<	10.000 UG/L
2,4-DICHLOROPHENOL W	<	10.000 UG/L	P-CHLORO-M-CRESOL W	<	10.00 UG/L
2,4,6-TRICHLOROPHENOL W	<	10.000 UG/L	4-NITROPHENOL WATER	<	50.000 UG/L
2,4-DINITROPHENOL W	<	50.000 UG/L	4,6-DINITRO-O-CRESOL W	<	50.000 UG/L
PENTACHLOROPHENOL W	<	50.000 UG/L	BIS(2)CHLOROPHTHYL-ETHR W	<	10.000 UG/L
1,4-DICHLOROBENZENE W	<	10.0 UG/L	BIS(2)CHLOROISOPHTHYLENE W	<	10.000 UG/L
NITROBENZENE IN WATER	<	10.000 UG/L	DIMETHYL PHTHALATE W	<	10.000 UG/L
2,6-DINITROTOLUENE W	<	10.000 UG/L	ACENAPHTHYLENE IN W	<	10.000 UG/L
2-METHYL PHENOL WTR	<	10.000 UG/L	4-METHYL PHENOL WTR	<	10.000 UG/L
2,4,5-TRICHLOROPHTHENEOL W	<	50.000 UG/L	BENZOIC ACID WTR	<	50.000 UG/L
4-BROMOPHTHALIC ETHER WTR	<	10.000 UG/L	BENZYL ALCOHOL WATER	<	10.000 UG/L
4-CHLOROANILINE WTR	<	10.000 UG/L	2-NITROANILINE WATER	<	50.000 UG/L
3-NITROANILINE WATER	<	50.000 UG/L	DIBENZOFURAN WATER	<	10.000 UG/L
4-NITROANILINE WATER	<	50.000 UG/L	3,3'-DICHLOROBENZIDINE W	<	20.000 UG/L
BIS(2)ETHYLPHENYL PHTHALATE W	<	10.000 UG/L	BENZIDINE FLURANTHENE W	<	10.000 UG/L
1,2-DICHLOROBENZENE W	<	10.0 UG/L	1,3-DICHLOROBENZENE W	<	10.0 UG/L
BIS(2)CHLOROETHYL PHTHALATE W	<	10.000 UG/L	NAPHTHALENE IN WATER	<	10.0 UG/L
HEXACHLOROCYCLOPENTADIENE W	<	10.00 UG/L	ACENAPHTHENE IN WTR	<	10.000 UG/L
DIETHYL PHTHALATE W	<	10.000 UG/L	FLUORENE IN WATER	<	10.000 UG/L
HEXACHLOROBENZENE W	<	10.00 UG/L	ANTHRACENE IN WATER	<	10.000 UG/L
PYRENE IN WATER	<	10.000 UG/L	CHRYSENE IN WATER	<	10.000 UG/L
2-CHLORONAPHTHALENE W	<	10.000 UG/L	NITROSODIPHENYLAMINE W	<	10.000 UG/L
2-METHYLNAPHTHALENE W	<	10.000 UG/L	PHENANTHRENE IN WATER	<	10.000 UG/L
FLUORANTHENE IN WATER	<	10.000 UG/L	BUTYLBENZYL PHTHALATE W	<	10.000 UG/L
4-CHLOROPHTHALIC ETHER W	<	10.000 UG/L	DI-N-OCTYL PHTHALATE W	<	10.000 UG/L
BENZO(A)PYRENE W	<	10.000 UG/L	BENZIDINE FLURANTHENE W	<	10.000 UG/L
BENZO(GHI)PERYLENE W	<	10.000 UG/L	INDENO(1,2,3-CD)PYRENE W	<	10.000 UG/L
DI-N-BUTYL PHTHALATE W	<	10.000 UG/L	BENZO(A)ANTHRACENE W	<	10.000 UG/L
2,4-DINITROTOLUENE W	<	10.000 UG/L	DIBENZIDINE ANTHRACENE W	<	10.000 UG/L
NITROSODIPHENYLAMINE W	<	10.000 UG/L	HEXACHLOROETHANE W	<	10.000 UG/L
ISOPHORONE IN W	<	10.000 UG/L	1,2,4-TRICHLOROBENZENE W	<	10.0 UG/L

SOURCE FIBERCAST/FIELD BLNK
PROGRAM WASTE MGMT SER(MULTI SITE)
COUNTY TULSA

CITY SAND SPRINGS

LEGAL

/4 /4 /4 SEC T R M

SAMPLER'S FIELD BLANK/SAMPLES 166881 & 166882

COMMENTS

ANALYST'S

COMMENTS

RECEIVED
JUN 30 1989
Waste Management Service

Bill Batten

=====

SAMPLE # : 166883

=====

=====

** SURROGATE RECOVERIES **

=====

=====

CODE : PWS

=====

COMPOUND:

% RECOVERY:

1,2-DICHLOROETHANE	:107:
TOLUENE-D8	: 95:
4-BROMOFLUOROBENZENE	: 95:
2-FLUOROPHENOL	: 87:
PHENOL-D5	: 58:
NITROBENZENE-D5	: 97:
2-FLUOROBIPHENYL	: 94:
2,4,6-TRIBROMOPHENOL	:115:
P-TERPHENYL-D14	:130:

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JUN 30 1989

Waste Management Service

GC/MS LABORATORY
SAMPLE ANALYSIS REPORT

Sample #: 166883

* TENTATIVLEY IDENTIFIED BY NBS LIBRARY SEARCH *

1.: NONE FOUND

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:ANALYST'S COMMENTS : BLANK FOR SAMPLE 166881.

RECEIVED

JUN 30 1989

Waste Management Service

ANALYST

Bill Batten

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SAMPLE NUMBER 166881 SAMP
 DATE COLLECTED 05/16/89
 DATE RECEIVED 05/18/89
 DATE COMPLETED 06/29/89
 STATION
 COLLECTED BY SAT

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DEPTH CODE

OKLAHOMA STATE DEPARTMENT OF HEALTH
 STATE ENVIRONMENTAL LABORATORY SERVICE
 REPORT OF ANALYSIS

COPY

WASTE MANAGEMENT SERVICE
 OSDH ROOM 803
 OKLAHOMA CITY

OK 73152

GENERAL PROJECTS

CONCENTRATION IN SAMPLE

PARAMETER	VALUE	UNIT	PARAMETER	VALUE	UNIT
PHENOL IN WATER	<	10.000 UG/L	2-CHLOROPHENOL WATER	<	10.000 UG/L
2,4-DIMETHYLPHENOL W	<	10.000 UG/L	2-NITROPHENOL WATER	<	10.000 UG/L
2,4-DICHLOROPHENOL W	<	10.000 UG/L	P-CHLORO-M-CRESOL W	<	10.00 UG/L
246-TRICHLOROPHENOL W	<	10.000 UG/L	4-NITROPHENOL WATER	<	50.000 UG/L
2,4-DINITROPHENOL W	<	50.000 UG/L	46DINITRO-O-CRESOL W	<	50.000 UG/L
PENTACHLOROPHENOL W	<	50.000 UG/L	BIS2CHLRETHYL-ETHR W	<	10.000 UG/L
1,4-DICHLOROBENZENE W	<	10.0 UG/L	BIS2CLROISOPVPLETH W	<	10.000 UG/L
NITROBENZENE IN WATER	<	10.000 UG/L	DIMETHYL PHTHALATE W	<	10.000 UG/L
2,6-DINITROTOLUENE W	<	10.000 UG/L	ACENAPHTHYLENE IN W	<	10.000 UG/L
2-METHYL PHENOL WTR	<	10.000 UG/L	4-METHYL PHENOL WTR	<	10.000 UG/L
245-TRICHLOROPHNEOL W	<	50.000 UG/L	BENZOIC ACID WTR	<	50.000 UG/L
4-BROMOPHPHETHER WTR	<	10.000 UG/L	BENZYL ALCOHOL WATER	<	10.000 UG/L
4-CHLOROANALINE WTR	<	10.000 UG/L	2-NITROANALINE WATER	<	50.000 UG/L
3-NITROANALINE WATER	<	50.000 UG/L	DIBENZOFURAN WATER	<	10.000 UG/L
4-NITROANALINE WATER	<	50.000 UG/L	3,3'-DICLROBNZDINE W	<	20.000 UG/L
BIS2ETHLHXLPHTHLATE W	<	10.000 UG/L	BNZO(8)FLURANTHENE W	<	10.000 UG/L
1,2-DICHLOROBENZENE W	<	10.0 UG/L	1,3-DICHLOROBENZENE W	<	10.0 UG/L
BIS2CLROETHXYMTHNE W	<	10.000 UG/L	NAPHTHALENE IN WATER	<	10.0 UG/L
HEXACHLROBUTADIENE W	<	10.00 UG/L	ACENAPHTHENE IN WTR	<	10.000 UG/L
DIETHYLPHTHALATE W	<	10.000 UG/L	FLUORENE IN WATER	<	10.000 UG/L
HEXACHLOROBENZENE W	<	10.00 UG/L	ANTHRACENE IN WATER	<	10.000 UG/L
PYRENE IN WATER	<	10.000 UG/L	CHRYSENE IN WATER	<	10.000 UG/L
2-CHLORONAPHTHALENE W	<	10.000 UG/L	NTRSODIPHENYLAMNE W	<	10.000 UG/L
2-MTHYLNAPHTHALENE W	<	10.000 UG/L	PHENANTHRENE IN WATER	<	10.000 UG/L
FLUORANTHENE IN WATER	<	10.000 UG/L	BTYLBNZYLPHTHALATE W	<	10.000 UG/L
4-CHLOROPHPHETHER W	<	10.000 UG/L	DI-N-OCTYLPHTHALTE W	<	10.000 UG/L
BENZO(A)PYRENE W	<	10.000 UG/L	BNZO(K)FLURANTHENE W	<	10.000 UG/L
BENZO(GHI)PERYLENE W	<	10.000 UG/L	INDENO(123CD)PYRNE W	<	10.000 UG/L
DI-N-BUTYLPHTHLATE W	<	10.000 UG/L	BENZO(A)ANTHRACENE W	<	10.000 UG/L
2,4-DINITROTOLUENE W	<	10.000 UG/L	DI9NZO(AH)ANTHRACNE W	<	10.000 UG/L
NTRSODINPRPYLAMNE W	<	10.000 UG/L	HEXACHLOROETHANE W	<	10.000 UG/L
ISOPHORONE IN W	<	10.000 UG/L	124-TRICHLOROBENZNE W	<	10.0 UG/L

SOURCE MONITOR WELL #18
 PROGRAM WASTE MGMT SER(MULTI SITE)
 COUNTY

CITY SAND SPRINGS

LEGAL

/4 /4 /4 SEC T R M

SAMPLER'S FIBERCAST/ JUST NORTH OF OFFICE
 COMMENTS METALS 166882

ANALYST'S
 COMMENTS

RECEIVED

JUN 30 1989

Waste Management Service

Bill Butler

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SAMPLE # : 166881

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** SURROGATE RECOVERIES **

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CODE : PWS

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COMPOUND:

% RECOVERY:

1,2-DICHLOROETHANE	:113:
TOLUENE-D8	:104:
4-BROMOFLUOROBENZENE	:108:
2-FLUOROPHENOL	: 79:
PHENOL-D5	: 50:
NITROBENZENE-D5	: 88:
2-FLUOROBIPHENYL	: 86:
2,4,6-TRIBROMOPHENOL	: 94:
P-TERPHENYL-D14	:111:

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Waste Management Service

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**** MATRIX SPIKE - SPIKE DUPLICATE ANALYSIS ****

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SAMPLE # : 166881

CODE : PWS

COMPOUND	SPK1	SPK2	ACTU	%RECOVERY	DIFFERENCE	%DIFFERENCE
PHENOL	: 125:	112:	250:	50	: 13	: 11
2CLPHENOL	: 202:	185:	250:	81	: 17	: 9
4CL3MPHEN	: 183:	135:	250:	73	: 48	: 30
4NITPHENOL	: 129:	99 :	250:	52	: 30	: 26
PCP	: 216:	187:	250:	86	: 29	: 14
14DICLBEN	: 90 :	86 :	125:	72	: 4	: 5
NPROPINE	: 97 :	96 :	125:	78	: 1	: 1
124CLBENZE	: 83 :	95 :	125:	66	: -12	: -13
ACENAPHENE	: 104:	99 :	125:	83	: 5	: 5
24DNTOLUEN	: 89 :	80 :	125:	71	: 9	: 11
DIBUTPHAL	: NA :	NA :	NA:		:	:
PYRENE	: 137:	132:	125:	110	: 5	: 4

COUMPUOND	SPK1	SPK2	ACTU	%RECOVERY	DIFFERENCE	%DIFFERENCE
11DICLENE	: 5.7:	6.3:	10:	57.0	: -0.6	: -10.0
TCE	:11.5:	12.6:	10:	115.0	: -1.1	: -9.1
BENZENE	: 9.9:	11.7:	10:	99.0	: -1.8	: -16.7
TOLUENE	:11.2:	13.0:	10:	112.0	: -1.8	: -14.9
CLBENZENE	:12.1:	13.5:	10:	121.0	: -1.4	: -10.9

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JUN 30 1989
Waste Management Service

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OKLAHOMA STATE DEPARTMENT OF HEALTH
STATE ENVIRONMENTAL LABORATORY SERVICE
REPORT OF ANALYSIS

RECEIVED
1980

JUN 6 1989

COPY

WASTE MANAGEMENT SERVICE
OSDH ROOM 803
OKLAHOMA CITY OK

518

7315 Waste Management Service

GENERAL PROJECTS

CONCENTRATION IN SAMPLE

[illegible]

SOURCE MONITOR WELL #18
PROGRAM WASTE MGMT SER(MULTI SITE)
COUNTY TULSA

CITY SAND SPRINGS

LEGAL

/s/ /s/ /s/ SEC T R M

SAMPLER'S FIBERCAST/JUST NORTH OF OFFICE
COMMENTS GC/US 100881

ANALYST'S
COMMENTS

C. J. [Signature]
 6787 Petros
 ENVIRONMENTAL LABORATORY SERVICE

***Indicate the number of containers for each analysis in the proper column.**

REFERENCE 22

FIBERCAST COMPANY
HAZARDOUS WASTE MANAGEMENT FACILITY
CLOSURE PLAN

BACKGROUND INFORMATION

This hazardous waste management facility closure plan has been developed to insure proper management of on-site waste at the time of closure of FIBERCAST COMPANY. The intent of this plan is to minimize the need for further maintenance and protect human health and the environment during the final waste management procedures of FIBERCAST COMPANY.

FIBERCAST COMPANY is a manufacturer of fiberglass-reinforced plastic pipe and fittings. Our hazardous waste management facility handles only the industrial waste generated by our manufacturing operations. The need for closure of the hazardous waste management facility would be preempted by the foreclosure of FIBERCAST COMPANY as a commercial enterprise. The expected year of closure can not be stated since the financial foreclosure of the Company is not anticipated. Partial closure of the hazardous waste facility as opposed to complete closure is also not anticipated.

HAZARDOUS WASTE GENERATION

Over the past two years our manufacturing operations have generated hazardous wastes of two types: spent acetone and waste methacrylic acid. Other hazardous waste stream generation is possible but not anticipated. Therefore, these two types of wastes; i.e., spent acetone and waste methacrylic acid will be addressed by this closure plan.

CLOSURE ACTIVITIES AND SCHEDULE

The specific activities required for complete closure of our hazardous waste management facility are given in Table "A".

Following approval of this closure plan by the Oklahoma State Department of Health, the following closure certification process will be initiated.

OWNER CERTIFICATION OF CLOSURE

The President of FIBERCAST COMPANY shall provide certification that the hazardous waste facility has been closed in accordance with the closure plan by executing the document which appears as Exhibit "A".

PROFESSIONAL ENGINEER CERTIFICATION OF CLOSURE

An independent professional engineer shall inspect the hazardous waste facility and certify that the facility has been closed in accordance with the closure plan by executing the document which appears as Exhibit "B".

TABLE "A"
CLOSURE ACTIVITY SCHEDULE

<u>ITEM NO.</u>	<u>DESCRIPTION OF CLOSURE ACTIVITY</u>	<u>MAXIMUM INVENTORY OF WASTE</u>	<u>POSSIBLE DISPOSITION OF WASTE</u>	<u>COMPLETION TIME AFTER INITIATION</u>
1	Remove and ship in bulk, waste acetone from two (2) tanks	2,500 gal.	Systech KS81001	45 days
2	Remove and ship in containers, waste acetone/resin sludge from two (2) tanks	300 gal.	USPCI RR47001	75 days
3	Ship in containers waste, methacrylic acid	200 gal.	Chemical Reclamation Service TX32277	75 days
4	Complete facility compliance inspection	N/A	N/A	80-85 days
5	Complete certification of closure by owner and by independent registered professional engineer	N/A	N/A	85-90 days

NOTE: All shipping and handling activities assume proper labeling, placarding, and manifesting prior to shipment and disposal. Other possible waste material dispositions are given OSDH Controlled Industrial Waste Generator's Listing-Disposal Plan No. 72002.

LWM/pv
5/1/87

EXHIBIT "A"

OWNER CERTIFICATION OF CLOSURE

I, Richard A. Bird, President, FIBERCAST COMPANY, 25 South Main, Sand Springs, Oklahoma 74063, hereby state and certify that, to the best of my knowledge and belief, the above-named hazardous waste facility has been closed in accordance with the facility's closure plan and that closure was completed on the date shown below.

SIGNATURE

DATE

EXHIBIT "B"

PROFESSIONAL ENGINEER CERTIFICATION OF CLOSURE

I, _____, a registered professional engineer, hereby certify, to the best of my knowledge and belief, that I have made a visual inspection of FIBERCAST COMPANY's facility at 25 South Main, Sand Springs, Oklahoma 74063, and that closure of the aforementioned facility has been performed in accordance with the facility's closure plan.

SIGNATURE

DATE

PROFESSIONAL ENGINEERING
LICENSE NUMBER

FOR STATE OF

BUSINESS ADDRESS

TELEPHONE NUMBER

REFERENCE 23

HAZARDOUS WASTE MANAGEMENT

Closure Plan

A. Necessary steps to close the hazardous waste storage facility.

- 1) Mark drums with proper transportation labels and data as required by current regulations.
- 2) Remove contaminated gravel or earth, if any, and place in drums and label for disposal.
- 3) Select a certified licensed hauler for drum transportation and bulk waste acetone transportation to disposal facility.
- 4) Arrange with disposal facility to accept drummed material and waste acetone for disposal.

Current possibilities for disposal facilities include:

- a) Lone Mountain Disposal Facility
Waynoka, OK.
 - b) U. S. Pollution Control, Inc. (Disposal Agent)
OKC, OK Phone 528-8371 or Steven Zambrzuski
USPCI - Tulsa 446-2786
- 5) Clean and rinse residue from waste acetone storage tank and arrange for residual material disposal, if necessary, through facilities mentioned above.
 - 6) Submit to regional administrator a detailed closure plan at least 180 days before closure is to begin.
 - 7) Submit to regional administrator certification by owner or operator and by an independent registered professional engineer that the facility has been closed according to closure plan regulations.

B. Closure cost estimate - February 1983:

1) Drum Disposal Cost -

a. Vinyl Ester plastic process waste =
 28 Drums (Dec. '82 Quantity) + 20 Drums (Future
 Generation) or 48 Total Drums x \$44.00/drum* = \$2,112

b. Methacrylic Acid =
 19 Drums (Dec. '82 Quantity) + 6 Drums (Future
 Generation) or 25 Total Drums x \$66.00/drum* = 1,650

c. Epoxy Process Waste =
 8 Drums (Dec. '82 Quantity) + 4 Drums (Future
 Generation) or 12 Total Drums x \$50.00/drum* = 600

d. Other Waste =
 11 Drums (Dec. '82 Quantity) + 5 Drums (Future
 Generation) or 16 Total Drums x \$200.00/drum = 3,200

Total Drum Disposal Costs = \$ 7,562

2) Drum Transportation Cost = (101 Total Drum)(450# Drum)
 @ (\$1.45/cwt) = 660

3) Surface Clean-up Cost =
 (24 hr. labor) @ (\$15/hr.) = 350

4) Waste Acetone Disposal Cost -

a. Total Storage Capacity of Acetone =
 (1500 gal.) x (\$0.40/gal.*) = \$600

b. Acetone Transportation Cost = 572*

c. Tank Clean-up Cost =
 (24 hr. labor) @ (\$15/hr.) = 350

Total Acetone Disposal Costs = 1,522

Total Closure Cost Estimate, February 1983 = \$10,100

*See attached Nov. '82 Disposal Quote from U.S.P.C.I.

REFERENCE 24

United States
Environmental Protection
Agency

Environmental Monitoring
Systems Laboratory
P.O. Box 15027
Las Vegas, NV 89114

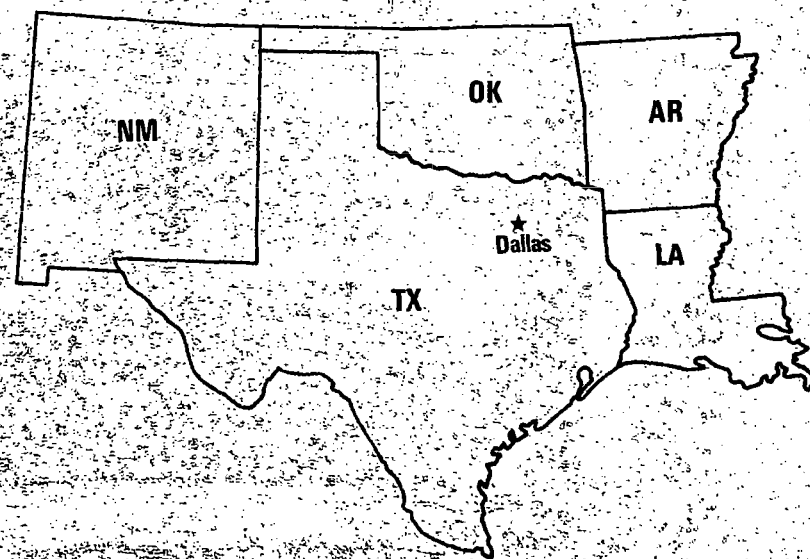
TS-AMD-81020
April 1981

Research and Development



Aerial Reconnaissance of the Sand Springs Hazardous Waste Site Sand Springs, Oklahoma

prepared for
EPA-Region 6



FIBERCAST SITE

NORTH

